FLIGHT SIMULATION GROUP · ROYAL AERONAUTICAL SOCIETY
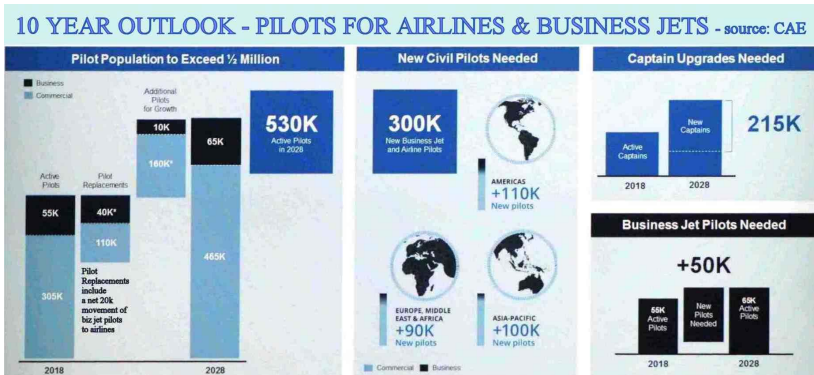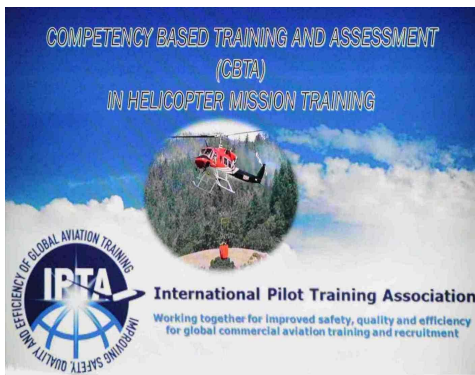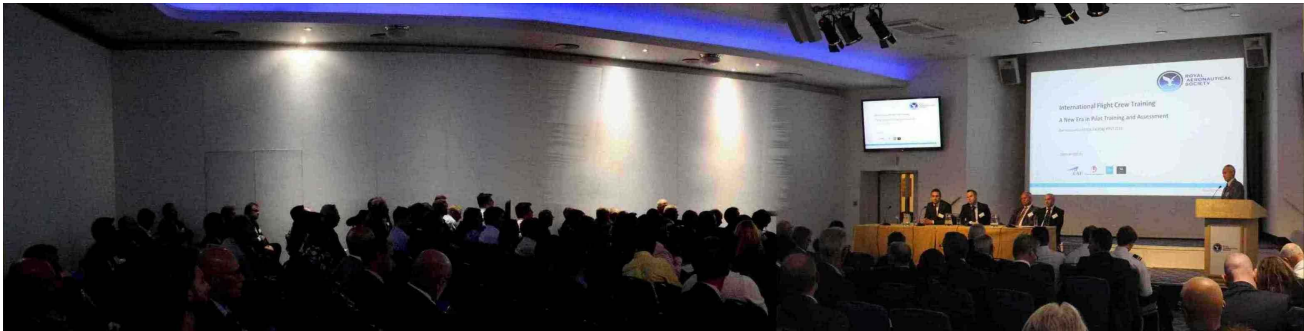
Simulation and Training - Recent World News

November 2018 **Editor: Ian Strachan** *FRAeS*

Pictures: from the RAeS Flight Crew Training conference September 2018

Contents

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

Argentina, Australia, Cambodia, Canada, China, Colombia, Czech Republic, Finland, France, Germany, Hong Kong, Hungary, Indonesia, Ireland, Israel, Italy, Japan, Latvia, Lithuania, Kazakhstan, Malaysia, Netherlands, New Zealand, Norway, Philippines, Portugal, Singapore, South Africa, South Korea, Spain, Sri Lanka, Sweden, Switzerland, Taiwan, Thailand, Turkey, UAE, UK, Ukraine, USA. (40 countries).

This Newsletter
- has nearly 12,000 words, of which 7900 are on aviation. Land systems have about 1300 words, introduction and editorial 1000, and Maritime 540. Simulation systems have 430 and corporate changes 470. Within air systems, Civil fixed-wing has 4200, military fixed-wing 2200, followed by military rotary wing with 600 and civil rotary with 400. A detailed table is at the end on page 20. These numbers show the domination of aviation in world simulation projects, with civil being almost double military in terms of word count. This is because international regulatory rules for civil aviation require the highest standard of Full Flight Simulator (FFS) for initial and recurrent training of all airline and business jet pilots worldwide. In contrast, individual military forces can make their own rules, and although the use of simulation has increased over the years, it is not mandated as it is in the civil sector.

Editorial

What follows is significant Training and Simulation news since the last edition.

Civil Pilot forecast plus Cabin Crew and Technicians
The 2018 Boeing Pilot & Technician Outlook predicts that 790,000 civil pilots will be needed worldwide over the next 20 years (39,500 per year). For the first time, this Boeing outlook includes pilots for business aviation and civil helicopters as well as airlines, and the business aviation and helicopter pilot forecast is for 155,000 pilots. For the same period, the maintenance technician forecast is 622,000 (31,100 per year) including 132,000 for business aviation and helicopters. The forecast for commercial cabin crew is 890,000 (44,500 per year) including 32,000 for business aviation. Boeing has also forecast that the world fleet of freight aircraft will grow from 1870 aircraft to 3260 in the next 20 years, an annual 4.2% increase.

A 10-year forecast from CAE presented to the Royal Aeronautical Society's annual Flight Crew Training Conference in September (see the graphic at the top of page 1) suggests a need for 300,000 new pilots in the world airline and business jet areas (30,000 per year), and an increase in overall pilot numbers to 530,000 in year 2028. New pilot requirements are forecast to be about 110,000 in North and South America (11,000 per year), 100,000 in the Asia Pacific area (10,000 per year) and 90,000 in Europe, the Middle East and Africa (9000 per year).

All of these increases will need simulators ranging from open-plan trainers to Full Flight Simulators with exact cockpit and control replication and 6-axis motion so that international rules on training for emergencies can be followed including Upset Prevention and Recovery Training (UPRT).

New US Army PEO STRI.
Brigadier Michael Sloane has taken over from Brigadier William Cole as the head of the US Army Program Executive Office for Simulation, Training and Instrumentation (PEO STRI). Before this, Brigadier Sloane served as the Assistant Program Executive Officer Enterprise Information Systems (PEO EIS). Brigadier Cole has retired from the Army and is now President and Chief Executive Officer of VT MAK of Cambridge, Massachusetts.

Highest aircraft-to-simulator ratio.
Boeing Defense, Space & Security (BDS), of St. Louis, Missouri, is to supply 120 flight simulators to the US Air Force for the new Boeing T-X advanced training aircraft. The $9.2 billion contract includes 351 aircraft, an aircraft-to-simulator ratio of 2.9:1, the highest so far seen for a training aircraft.

RAeS London - Annual Flight Crew Training Conference 25-26 September
The annual Flight Crew Training conference was held at the London headquarters of the Royal Aeronautical Society (RAeS) from 25-26 September 2018. Speakers came from the European Aviation Safety Agency (EASA), UK CAA, US Federal Aviation Administration (FAA), International Pilot Training Association (IPTA), International Air Transport Association (IATA), Association of African Training Organisations (AATO), and companies including Airbus, CAE, Etihad, Gulf Air, Lufthansa, KLM, Oxford Aviation Academy (OAA). Subjects covered included augmented training solutions, competency-based and evidence-based training, optimisation of ab-initio training, performance-based regulation, training for the multi-crew pilot licence (MPL), selection and screening of pilots.

I/ITSEC - Orlando 26-29 November
The annual Interservice and Industry Training, Simulation and Education Conference (I/ITSEC) exhibition and conference (www.iitsec.org) will be held in Orlando, Florida, from Monday 26 November to Thursday 29 November. This will be at the South Concourse of the Orange County Convention Center, in International Drive between the Hyatt Regency and Hilton hotels. Keynote speakers on 27 November are scheduled to be Admiral Christopher Grady, Commander of US Navy Fleet Forces Command, and Stan Deal, President of Boeing Global Services. Last year I/ITSEC had over 16,000 exhibition attenders, and 379 organisations were listed as exhibitors - it will be interesting to see how this year's event compares.

World Simulation and Training Events

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.
Organiser: NTSA www.trainingsystems.org

2019 - April 30 - May 2 - World Aviation Training Summit 2019 (WATS)
Vanue: Rosen Shingle Creek Resort, Orlando, Florida.
Organiser: Halldale Group   www.halldale.com   &   www.wats-event.com

2019 - May 14-16 - ITEC 2019
Venue: Stockholmsmässan, Älvsjö, Stockholm, Sweden
Organiser: Clarion Events www.clarionevents.com & www.itec.co.uk

2019 - June 11-12 - RAeS Flight Simulation Group Conference
Venue: Royal Aeronautical Society, 4 Hamilton Place, London W1J 7BQ, UK
Organiser: RAeS Flight Simulation Group www.raes-fsg.org.uk

2019 - June 25-29 - Asian Aviation Education and Training Symposium (AAETS)
Venue: Conrad Hotel Seoul, South Korea
Organiser: Halldale Group   www.halldale.com   &   www.aaets-event.com

2019 - September 3-4 - Asia Pacific Airline Training Symposium (APATS)
Venue: Sands Expo and Convention Centre, Singapore
Organiser: Halldale Group   www.halldale.com   &   https://apats-event.com

2019 - November 12-13 - RAeS Flight Simulation Group Conference
Venue: Royal Aeronautical Society, 4 Hamilton Place, London W1J 7BQ, UK
Organiser: RAeS Flight Simulation Group www.raes-fsg.org.uk

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

CIVIL FIXED-WING AIRCRAFT SYSTEMS
For rotary wing systems (helicopters and propeller-driven tilt engine / tilt wings), see later

ACCEL Flight Simulation - www.accelflightsimulation.com
China. ACCEL Flight Simulation Co Ltd of Tientsin, SE of Beijing, and the Civil Aviation University of China (CAUC) are to collaborate on simulator training for pilots in China. ACCEL is a joint venture between Haite High-Tech of Chengdu, China and Rockwell Collins, headquartered in Cedar Rapids, Iowa, USA.

AeroStar Training - https://aerostartyperatings.com
Cambodia. AeroStar Training Services LLC, headquartered in Kissimmee, S of Orlando, Florida, USA, is to provide A320 Type Rating, Airline Transport Pilot certification program (ATP/CTP) and multi-crew cooperation (MCC) training to Khmer Pilot Training Co Ltd (www.khmerpilottraining.com) of Phnom Penh.
USA. AeroStar has installed an A320 simulator at their training centre at Kissimmee Gateway Airport. The training centre is to be expanded from 18,000 to 30,000 sq ft. AeroStar is also to install a Boeing B737 NG full-flight simulator (FFS) at Kissimmee.

AFT Academy - https://afta.ie
Ireland. Atlantic Flight Training Academy (AFTA) based in Cork, Ireland, is to train pilots for Ryanair. It will deliver a 16-month training programme for pilot licenses using Ryanair procedures with an expected throughput of up to 450 new pilots over the next five years. See also www.afta.ie/ryanair.

Alsim - www.alsim.com

Canada. Alsim of Le Loroux Bottereau, East of Nantes, France, is to supply an AL250 simulator to Montair Aviation at Pitt-Meadows airport on the east side of Vancouver (www.montair.com). This will have Alsim HDVS visual system with a 250 x 49 degree display.

Colombia. Alsim has delivered an AL250 model of simulator to Escuela de Aviacion Flying in Medellin, NW of Bogotá (www.escueladeaviacionflying.co). This is configurable to classic or glass cockpits, Single-engine Piston (SEP) and Multi-engine Piston (MEP), analogue or electronic instruments (EFIS).

France. Alsim is to supply AL250 and ALX Multi Engine Piston and Medium Jet simulators to Trimaille Aero Formation (TAF) at Toussus-le-Noble airfield on the SW side of Paris (www.ww.trimailleaeroformation.com). TAF used the Alsim buyback system under which old devices can be replaced by new. TAF will the use AL250 for Commercial Pilot Licence (CPL) and Instrument Rating (IR) training, the A320 Jet Orientation Course (JOC) and Multi-Crew Operation (MCC).

Hungary. Alsim has installed an ALX training device at Fly Coop flight school, Budapest (www.flycoop.hu). It models single/multi engine piston and medium jet, and is EASA and FAA-qualified as a FNPT II MCC.

Portugal. Alsim is to deliver an ALX FNPT II trainer to the IFA Aviation Training Center in São Domingos de Rana. Installation is scheduled for December 2019, after certification by the Portuguese Civil Aviation Authority (ANAC).

S Africa. Alsim is to supply an AL250 FTD Level 5 training device to Aviation Pilot Training, Capetown, for delivery in Q1/2019. The AL250 is EASA-qualified as an FNPT II (Flight Navigation Procedures Trainer) and has both classic and glass-cockpit instruments.

Spain. Alsim is to deliver an AL250 trainer to Flyschool Air Academy in Madrid, Spain (www.flyschool.es/en). It will be qualified as a Flight Navigation Procedures Trainer at EASA-FNPT II level.

UK. Alsim delivered an AL42 training device for the Diamond DA42 training aircraft to Skyborne airline training academy (https://skyborne.com) based at Gloucestershire Airport, Staverton.

USA - Fort Myers. Alsim is to supply an AL172 training device for the Cessna 172 SP Skyhawk NAVIII to Paragon Flight Training, Fort Myers, Florida. This will have Garmin G1000 NXI avionics and the Alsim High Definition Visual System (HDVS).

USA - Sarasota. Alsim has supplied AL172 and AL250 simulators to a new Cirrus Aviation (www.cirrusaviation.com) demonstration centre and simulation lab at Sarasota Bradenton Airport, on the west coast of Florida, south of Tampa. Cirrus is to develop a curriculum including training scenarios, debrief stations and will tune the devices to improve realism.

Alsim AL172

Avion Group – www.aviongroup.aero

Thailand. Avion Group, headquartered in Nieuw-Vennep, SW of Amsterdam Schiphol Airport, Netherlands, is to install simulators at the International Aviation College (IAC) in Thailand. IAC Nakhon Phanom University is a state-owned college in Thailand that offers pilot training for CPL, BBA and MBA degrees in aviation management. and an aircraft maintenance diploma.

Avsoft - www.avsoft.com

Sweden. Avsoft International, headquartered in Aurora, Colorado, USA, is to supply their AvLMS Learning Management System and courses for CRJ-200PF & 767-200SF aircraft to the West Atlantic Group of Gothenburg (https://westatlantic.eu).

Axis FTS - www.axis-simulation.com

India. Axis Flight Training Systems GmbH of Tobelbad, SW of Graz, Austria, has installed a Level D ATR 72-500 full flight simulator (FFS) at Flight Simulation Technique Centre (FSTC) on the SW side of New Delhi (www.fstc.in). This has been approved by the India Directorate General of Civil Aviation (DGCA). The FFS has Honeywell HT1000 simulated avionics, 60inch Moog Motion System, 200 x 40 degree collimated RSI XT4 visual system.

Baltic AA Training - www.baatraining.com

Lithuania. Baltic AA Training Aviation Academy of Vilnius, Lithuania, has added a CAE-built Boeing 737NG full flight simulator (FFS). This has Tropos 6000XR visual, a lesson plan builder, and a redesigned instructor station.

CAE - www.cae.com

Japan. CAE, headquartered in Montreal, Canada, has delivered an Airbus A320 full-flight simulator (FFS) to JAL-CAE Flight Training (JCFT) in Tokyo, the joint venture (JV) between CAE and Japan Airlines. The FFS includes the CAE Rise™ system for standardized training to the airline Standard Operating Procedures (SOP). This brings the total number of FFS at the Tokyo centre to nine.

Malaysia. CAE has an agreement with AirAsia Berhad, headquartered near Kuala Lumpur, to train over 400 AirAsia cadets for the Multi-Crew Pilot License (MPL). Training will be CAE's training centres at Kuala Lumpur, CAE Melbourne and CAE Phoenix. After 18-months training the pilots will become AirAsia first officers.

Philippines. CAE is to supply a full-flight simulator for the Airbus A320Neo to the Philippine Academy for Aviation Training (PAAT), a Joint Venture (JV) between CAE and Cebu Pacific. This will be a CAE7000XR Series with Tropos™ 6000XR visual. It will be located at the PAAT training centre, near Manila, in the first half of 2019.

Singapore. CAE has opened Singapore CAE Flight Training Pte. Ltd. (SCFT), a joint venture (JV) together with Singapore Airlines (SIA). This will provide simulator and classroom training, initially for Boeing aircraft. The JV is equally owned by CAE and SIA and is at the Singapore Airlines Training Centre near Changi Airport. SIA will transfer four of its Boeing aircraft simulators, and new CAE-built equipment will include for the Boeing 737 MAX and B 787.

South Korea. CAE is to train pilots of Air Busan (https://en.airbusan.com) at the CAE Korea training centre near Gimpo International Airport, Seoul. Air Busan is a low-cost airline based in Busan on the south coast of South Korea, and is a subsidiary of Asiana Airlines (https://flyasiana.com).

UAE. CAE has approval from the US Federal Aviation Administration for Part 142 training on a new full-flight simulator (FFS) for the Embraer ERJ 145 regional jet, at the Abu Dhabi Aviation Training Centre (ADATC - www.abudhabiaviation.com). Amongst others, pilots from Falcon Aviation will be trained.

USA. CAE has delivered a Bombardier Challenger 604 full-flight simulator to the CAE training centre in Dallas, Texas.

CAE OAA - www.caeoaa.com

Saudi Arabia. CAE Oxford Aviation Academy (OAA) has opened an Authorized Training Center in the port city of Dammam, NW of Bahrain Island. The academy is part of a US$300M project that includes a flight simulator centre and an aircraft maintenance school at Dammam airport. Students will receive three years of training before graduating, and may include a number of female trainee pilots for the first time in Saudi Arabia. It is reported that applications have been received from many women for courses starting later in 2018.

CEFA - www.cefa-aviation.com

South Korea. CEFA Aviation Mobile Services (AMS) of Colmar, France, SW of Strasbourg, is to supply its Flight Animation System (FAS) software to the safety department of Jin Air, based in Seoul (www.jinair.com). This will be used for its 30 aircraft and includes aircraft navigation charts and video for pilot training.

Commercial 2C - https://c2ccrew.com

UK. Commercial 2 Corporate (C2C), based in Dubai, UAE, is to provide cabin crew training for KURA Aviation of Stratford-on-Avon, UK (www.kuraaviation.com). The C2C training course will cover the differences between commercial and corporate aviation.

CPaT - www.cpat.com & **Astrom Aviation** - www.astromaviation.com

China and USA. CPaT Global LLC of The Woodlands, N of Houston, Texas, USA, and Astrom Aviation Technology Inc of Beijing, China, signed a Memorandum of Understanding to provide training solutions to Airline Training Organizations. CpaT courseware will be combined with Astrom's Galaxy™ web-based training management system and used in basic pilot courses up to advanced evidence-based training (EBT).

Diamond Simulation - www.diamond-simulation.com

Latvia. Diamond Simulation GmbH & Co KG of Trebur, near Frankfurt, Germany, has supplied a DSIM model of flight simulator to the airBaltic Pilot Academy in Riga. This will support the Diamond Aircraft single-engine DA40 NG aircraft and twin-engine DA42-VI from that are used by airBaltic for flight training.

EASA - www.easa.eu.int

The European Aviation Safety Agency (EASA), headquartered in Cologne, Germany, has published a Notice of Proposed Amendment (NPA) for Evidence-Based Training (EBT). The NPA is part of the EASA European Plan for Aviation Safety (EPAS) 2016-2020. At International level, documents include International Civil Aviation Organization (ICAO) Doc 9868 "Procedures for Air Navigation Services - Training" (PANS-TRG), and ICAO Doc 9995, "Manual of Evidence-based Training".

Elite Simulation - www.flyelite.com

Switzerland. Elite Simulation Solutions, headquartered in Dubendorf, Zurich, Switzerland, has released a new version of its ELITE XTS Home flight training software, also some new hardware products. ELITE XTS software includes a variety of single and multi-engine aircraft, a wide-screen instrument panel, GPS options for GNS and GTN virtual flight management systems, attitude and heading reference system (AHRS) avionics displays, and flight bag (EFB) connectivity with ForeFlight and Garmin Pilot. The software is also compatible with SimControlX, an iPad-based instructor app.

New hardware products include a redesigned ProPanel III Flight Console with interchangeable switches between single and multi-engine aircraft, and avionics modules including controls for the AHRS, EFIS and GPS.

Euramec - https://euramec.com
China. Euramec NV of Hamme, Belgium, SW of Antwerp, has opened a Research and Development Centre in Hangzhou. This is to produce flight simulation and aviation training devices, and also manufacture a two-seat Ultra Light aircraft (ULM).

Flame Aviation - www.flame-aviation.com
Netherlands. Flame Aviation of Wassenaar, NE of The Hague, Netherlands, has launched its V9000 Commander™ XR cabin fire and smoke trainer. In addition to fire, heat, smoke, glowing spots and short circuit effects, the new trainer has cabin sound, burning smells, hot spots, and an iPad remote-control unit.

Flyco Turkey - www.flyco.com.tr/en
Turkey. Flyco Training Solutions A.S. of Istanbul, part of Flyco Global, headquartered in London, UK, is to supply its Competency based E-Training (CompBT) system to ACT Airlines, headquartered in Kurtköy, Istanbul (www.actairlines.com). CompBT is a two-stage training and assessment system. It obtains data on the overall knowledge of an individual crew member on any subject in Flyco's E-library, and customizes the training required. Data from CompBT can be analyzed by Flyco's Advanced Reports System (ARS) to track individual performance and can also be used in Evidence based Training (EBT) and Advanced Training Qualification Programs (ATQP).

Frasca - www.frasca.com
China. Frasca International Inc of Urbana, S of Chicago, USA, is to supply a Level 5 Archer Flight Training Device (FTD) for Chengdu Fanmei Aviation Industry Co in Chengdu, Sichuan; a Cessna 172 Level 5 FTD for Hebei Zhiyuan GA Co in Hebei Province, and a DA40/42 G1000 FTD for the First International Aviation Academy in Jilin Province.
Japan. Frasca is to supply five Level 5 Flight Training Devices (FTDs) for the Cirrus SR22 to the Japan Civil Aviation College (JCAC). These will have Garmin NXi avionics, three channel Frasca TruVision™ visual, and Simplicity™ Instructor Operator Station (IOS). JCAC is based at Obihiro on Japan's northern island Hokkaido, also at Miyazaki on the southern island of Kyushu, and trains pilots for Japan Airlines (JAL) and All Nippon Airways (ANA).

Frasca - Cessna 172

FSI Simulation - www.flightsafety.com/fs_service_simulation_systems.php
Hong Kong, UK, USA. FSI is offering training with Enhanced Flight Vision Systems (EFVS) to Touchdown and Rollout for Gulfstream G500 and other Gulfstream aircraft with the Rockwell Collins HUD II and Kollsman (Elbit) EVS-II and EVS-SP. It is also offering Advanced Upset Prevention and Recovery Training (AUPRT) for the Gulfstream GIV, upgrading the Gulfstream GIV simulator with FlightSafety VITAL 1100 Visual System, and offering G500 training Before the check ride, pilots have 46 hours of classroom instruction, 18 hours of Systems Integration, 8 hours in the Flight Training Devices and 24 hours of simulator time. Training is available at FlightSafety Learning Centers in Columbus, Ohio; Dallas, Texas; Hong Kong; Long Beach, California; Savannah, Georgia; Wilmington, Delaware and in the UK at Farnborough.
Singapore. FlightSafety International (FSI) Simulation, headquartered at Broken Arrow, Tulsa, Oklahoma, is to deliver a Level D full flight simulator (FFS) for the Airbus A320 to HAITE Aviation Safety and Training (www.haite-sg.com). This will be for the A320 CEO and NEO versions for service in January 2019. It will have the CrewView™ glass mirror display and a new instructor operating station.
USA - Florida. FlightSafety is to provide flight training to Delta Air Lines through the Delta Propel Pilot Career Path Program. Training will be at the FlightSafety Academy in Vero Beach, Florida, for FAA multi-engine ratings and become qualified as Certified Flight Instructors. They will have an opportunity to work at the Academy as an instructor while acquiring the 1,500 hours needed for an FAA Airline Transport Pilot License (ATPL) and then flying Delta aircraft.
USA -New Jersey. FSI is adding new simulators at its Teterboro Learning Center in New Jersey. These will be for the Dassault Falcon 2000LXS, Falcon 900LX, and King Air 350. The Falcon simulators will have the Dassault FalconEye Combined Vision System HUD, FSI CrewView collimated glass mirror display and VITAL 1100 visual.

HAITE Singapore - www.haite-sg.com

China. HAITE Aviation Training Singapore, headquartered at Changi Business Park, has a agreement with China Eastern Airlines for pilot training. This will use an Airbus A320 flight simulator to be installed by January 2019, and a Boeing B737 MAX simulator to be installed by January 2020.

Malaysia. HAITE Aviation Training Singapore and Malaysian Airlines Berhad (MAB) Academy, a subsidiary of Malaysian Aviation Group, signed an agreement to collaborate on flight crew training in Malaysia. HAITE and MAB Academy will develop turnkey pilot training for various airlines in the Asia Pacific area.

HAITE Singapore is a subsidiary of Sichuan Haite High-Tech Co. Ltd. of Chengdu, China.

InfoWERK - www.infowerk.at

Germany. infoWERK Multimedia Communications System Inc of Innsbruck, Austria, is providing its Learning Management System (LMS) and Specialized Maintenance Training courses to AAC COLUMBIA Jet Service, headquartered at Hannover Airport. ACC will use infoWERK's Human Factors (HF), Fuel Tank Safety (FTS), Electrical Wiring Interconnection System (EWIS), Aviation Legislation, Engine Condition Trend Monitoring (ECTM) and Minimum Equipment List (MEL) training courses. infoWERK's LMS is an online tool for e-learning courses through which instructors can enroll, manage, communicate, test, track and generate reports.

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

Australia. L3 Commercial Training Solutions (L3 CTS), headquartered at Crawley, S of London Gatwick airport, UK, is to provide its RealitySeven design Full Flight Simulator (FFS) for the B787-9 to the Qantas Flight Training Facility in Sydney. This will have a briefing station that will allow pilots to complete several elements of cockpit preparation outside the FFS, saving time inside the simulator.

France. L3 CTS is to supply Air France with its RealitySeven design FFS for the Airbus A350.

Netherlands. L3 CTS has delivered a Level D Boeing 787-9 full flight simulator to the FSI Amsterdam training centre and is now ready-for-training (RfT). This is the RealitySeven design with GE NX-1B and RR Trent 1000 engines.

UK. L3 is to open a new London Training Centre at the L3 Crawley facility, to open in Q1/2019. It is estimated to cost about $100M and will have 8 RealitySeven FFS, 4 flight training devices (FTD), 8 flat panel trainers, 8 classrooms and briefing rooms. Initial customers include easyJet, L3 Airline Academy, Norwegian Air, TUI, and WOW air.

MINT Software - www.media-interactive.de

USA - Hawaii. MINT (Media INTeractive) Software Systems GmbH, headquartered in Kiel, Germany, is to deliver its Training and Resource Management System (MINT TRMS) to Hawaiian Airlines (https://www.hawaiianairlines.com). TRMS gives online access to training schedules, reports, learning material and other training data.

MPS - www.flymps.com

Australia. Multi Pilot Simulations B.V. (MPS) of Groenekan, Utrecht, the Netherlands, has supplied a fixed-base FTD1 training device for the Boeing 737-800 to SimJet Group Flight Simulator and Recruitment Centre at Brisbane Airport (www.simjet.com.au). Simjet has plans for an extra B737NG and a B737MAX training device.

UK. MPS has delivered a fixed-base Flight Training Device (FTD) for the Boeing B737 MAX to Skyborne Airline Academy at Gloucestershire Airport. The FTD recently received EASA FTD-1 certification from the Dutch Civil Aviation Authority (CAA).

PacSim - www.pacificsimulators.com

Argentina. Pacific Simulators 2010 Ltd (PacSim) of Christchurch, New Zealand, is to deliver a ProJet PS4.5 Flight Training Device (FTD) to the CEA training centre that has opened in Buenos Aires. The PS4.5 is a fixed-base device that simulates a narrow-body jet airliner and can train students for Airbus A320 or Boeing 737. It has an enclosed cockpit with glass cockpit displays, flight management computers (FMCs), autopilot flight director systems (AFDS), traffic collision avoidance systems (TCAS) and ground proximity warning systems (GPWS).

Indonesia. Pacific is to deliver two training devices to Flybest Flight Academy in Batam island (https://flybest.co.id), just south of Singapore. These are a EuroJet Cockpit Procedures Trainer (CPT) and a ProJet PS4.5 Flight Simulator Training Device (FSTD.

Japan. PacSim is to supply a ProJet FJ2000 Cockpit Procedures Trainer (CPT) to Japan Transocean Air (JTA), part of JAL Group. This will be configured for the B737-800.

New Zealand. PacSim is to supply a ProJet PS2.5 FTD to Nelson Aviation College (NAC) at Motueka on the North end of the the South Island. This is a fixed base Flight Training Device (FTD) based on a narrow body 2-engine jet.

Pelesys - www.pelesys.com

Malaysia. Pelesys Learning Systems Inc, of Richmond, S side of Vancouver, Canada, is to supply its Training Management and Deployment System (TMDS) to AirAsia Berhad, headquartered near Kuala Lumpur (www.airasia.com). AirAsia will use Pelesys' Qualification Management System (QMS) to monitor and manage the qualifications and training of flight and cabin crew. Pelesys will support the digitization of AirAsia flight crew and cabin crew records, and the QMS module will be integrated with AirAsia's crew rostering system.

PFA Sandefjord - www.pilotflightacademy.com

Norway. Pilot Flight Academy (PFA) of Sandefjord, S of Oslo, Norway, has purchased three FNPT II training devices for the Diamond DA-42 twin engined aircraft.

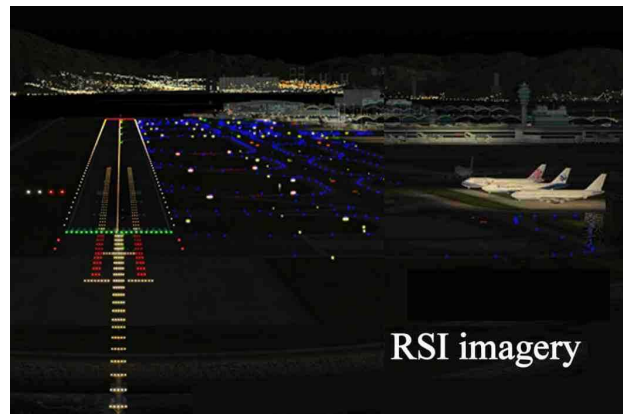**Qantas Academy** - www.qantas.com/au/en

Australia. Qantas Group Pilot Academy is to open at Wellcamp Airport, Toowoomba, west of Brisbane, Queensland, in 2019. This will have facilities worth $35M, and L3 Commercial Aviation (www.l-3com.com) will be the training provider. The academy will initially train around 100 pilots a year for the Qantas Group, including Jetstar and QantasLink. Depending on demand from other parts of the aviation industry, this could grow to 500 pilots a year. A second training site is also planned and will be announced later.

Rockwell Collins Simulation - www.rockwellcollins.com/service/simulation

Turkey. Rockwell Collins is to supply EP-8100® image generators with JVC laser projectors to the Turkish Airlines training centre in Istanbul (https://akademi.thy.com). These will be for simulators for the Airbus A320neo, A330 and A350 XWB and the Boeing 737 MAX, 777-300 and 787 Dreamliner. The contract is for 9 new visual systems with options for five more. The airline recently opened a new 18-bay simulator building and the new systems will be manufactured at Rockwell Collins facility in Salt Lake City, Utah, USA.

RSi - www.rsi-visuals.com

UK. Redifun Simulation inc (RSI) Visual Systems of Euless, between Dallas and Fort Worth, Texas, USA, has delivered a Level D Epic Visual System to Cardiff Aviation Training Ltd for a B747-400 full flight simulator. The Epic visual includes three channel RS100 image generation and Norxe P1 150 degree projection with DLP LED, 4.1 million pixels and 2000 lumens per channel.

RSI imagery

RST Rostock - www.rst-rostock.de

Germany. RST Rostock System-Technik GmbH of Rostock, on the Baltic coast of Germany, installed a training passenger cabin at the German Aerospace Center (DLR) Braunschweig (Brunswick), east of Hanover . This will be used for research at the DLR Air Vehicle Simulator (AVES) centre together with existing simulator cockpits for aircraft and helicopter. The training cabin has rows of seats, luggage racks, displays, cabin crew controls, and air conditioning.

RST Rostock - www.rst-rostock.de & **PACE** - www.txtgroup.com/it/chi-siamo/offices-subsidiaries

Germany. RST Rostock System-Technik GmbH of Rostock, on the Baltic coast of Germany, has an agreement with PACE GmbH, of Berlin, Germany, to combine their expertise for future trainers for airline cabin crew. RST offers a portfolio of aircraft cabin trainers, and in the future will add PACE's expertise in virtual and mixed reality. PACE is a subsidiary of TXT e-solutions S.p.A, headquartered in Milan, Italy, and is a member of the Microsoft Mixed Reality Partnership Program that deals with cross-reality applications including HoloLens and VR headsets.

Simorg - http://simorg.aero/

Turkey. Simorg Aero of Istanbul is to supply its eXperience as a Service (eXaaS) software to the Pegasus Flight Training Center in Istanbul (www.pegasusflightacademy.com). The software includes simulator scheduling, configuration control, maintenance and spare parts management.

SITA - https://www.sita.aero

UK. Société Internationale de Télécommunications Aéronautiques (SITA), headquartered in Geneva, Switzerland, is to deliver an Augmented Reality app for cabin crew of Virgin Atlantic airlines headquartered in Crawley, on the south side of London Gatwick airport (www.virginatlantic.com). This will enable cabin crew to "walkthrough" a B787 cabin before using the aircraft itself for further training.

SkyArt - www.skyart.com/cabin-crew-trainers
Kazakhstan. SkyArt of Istambul, Turkey, has installed a Boeing B77-200 cabin trainer in Almaty. It will be used in the Kazakhstan Border Guard Service Cadet Training Program that is sponsored by the U.S. government. The device is 26 metres long with business and economy cabins, galleys and lavatories.

Skyborne Academy - www.ukflying.com/skyborne &   https://skyborne.com
UK. The new Skyborne Airline Academy, based at Gloucestershire Airport, UK (formerly called Staverton), is to train pilots for the Airline Transport Pilot Licence (ATPL) under a system called Progressive Continuous Learning (PCL).

Spatial Composites - www.spatial-composite.com
Australia. Spatial Composite Solutions FZE, Jebel Ali Free Zone, Dubai, UAE, is to update Cabin Emergency Evacuation Trainers (CEETs) for Qantas narrow-body and wide-body aircraft. Spatial will install its Programmable Logic Controller (PLC) operating system, paired visual technology and a wire-less Instructor Operator Station (IOS).
New Caledonia. Spatial is to install a Cabin Emergency Evacuation Trainer (CEET) and a Cabin Service Trainer (CST) at the Aircalin training facility in the New Caledonia French territory of islands in the South Pacific. (https://us.aircalin.com/en). This will be for the Airbus A320 and A330 and will train cabin crew in door operation, evacuation procedures, fire and smoke training.
Turkey. Spatial has delivered an over wing exit trainer for the Airbus A321NX to the Pegasus Airlines crew training centre in Istanbul.
UAE. Spatial is to supply six cabin trainers to Dynamic Advanced Training for its training academy in Aviation City, Dubai South, to open in early 2019. This will include two business jet cabin emergency evacuation trainers (CEET), plus wide and narrow body CEET for Airbus and Boeing aircraft with motion and visual systems. An Airbus A350 and Boeing 787 door trainer will also be provided.

TRU Simulation - www.trusimulation.com
Australia. TRU Simulation + Training Inc, headquartered at Charleston, South Carolina, USA, is to provide a Level 6 Flight Training Device for the King Air 350/250 for the Australian Royal Flying Doctor Service (RFDS). The device will be certified by the Australian Civil Aviation Safety Authority (CASA) and is to be delivered to the RFDS base at the Dubbo City Regional Airport, NSW, in Q3/2019. The device will have Collins Pro Line Fusion avionics and TRU's REALfeel technology. The trainer will be used by the RFDS SE's CASR Part 141/142 Aviation Training Team.

Taiwan. TRU has supplied an ATR-600 Level D full flight simulator to Ansett Aviation Asia (www.ansettaviationtraining.com). Training has started for its launch customer, Mandarin Airlines.
UK. TRU has installed a Level D 737 MAX full flight simulator (FFS) at the Boeing Training Centre at Gatwick, south of London.

TRU Simulation - www.trusimulation.com & **Peak Pacific** - www.peakpacificgroup.com
China & USA. TRU Simulation + Training Inc, headquartered at Charleston, South Carolina, USA, and Peak Pacific Limited of Hong Kong, China, signed a Memorandum of Understanding (MoU) to collaborate on training systems and Flight Simulators for airline training. Peak Pacific has developed 'eTo' (Electronic Training Objects), a design and development tool for simulator and flight training assessments. eTo connects to simulators and has an EBT-based analysis capability for the simulator curriculum. The eTo application plugs into Peak Pacific's CLEAR Training Management System (TMS), for grading, reporting and analysis tool.

Venyo - www.venyo.aero
France and China. Venyo Europe SA, of Charleroi Airport, south of Brussels, Belgium, has received FTD Level 5 certification from the Civil Aviation Administration of China (CAAC) for a B737NG fixed base training device at the SIMAERO campus at Charles De Gaulle Airport, Paris. This is so that Chinese crews can train on this device, which already has EASA FTD Level 2 certification.

Wings Alliance - www.wingsalliance.eu
Spain, Sweden, UK. The Wings Alliance, headquartered in Clevedon, west of Bristol, UK, launched the Whitetail Cadet Program. This allows individuals to complete pilot training using flight schools in Spain, Sweden and the UK. The 16-month programme uses glass-cockpit aircraft and solo exercises are replaced by co-pilot training on instrument flight, airline procedures and familiarisation with European airspace.

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

Entrol - www.entrol.es

<u>Italy - Milan</u>. Entrenadores Olarte, S.L (Entrol) of Madrid, Spain, has obtined FNPT II MCC certification from Ente Nazionale per l'Aviazione Civile (ENAC) for its AW139 simulator at Heli Protection Europe (HPE) of Cerro Maggiore, Milan (www.hpeurope.it). This has Honeywell Primus 1000 avionics, dual FMS, WX-radar, ACAS II and a moving map. The simulator has also been certified for Lateral Navigation/Vertical Navigation (LNAV/VNAV) and Localizer Performance with Vertical guidance (LPV).

<u>Italy - Rieti</u>. Entrenadores Olarte, S.L (Entrol) of Madrid, Spain, has achieved FNPT II MCC certification for a training device for the Piaggio Avanti II at the Heli Protection Europe (HPE) training centre in Rieti. It has Collins ProLine 21 avionics, <u>Spain</u>. Entrol is to supply a training device for the Airbus Helicopters (ex Eurocopter) H135 twin-engine utility helicopter to European Flyers, a Spanish flight school in Madrid and Alicante. This will be an Entrol H11 FNPT III MCC trainer and will have GTN 750 flight management systems, 200 x 70 degree visual, and a vibration system. It will be used for instrument-rating (IR); commercial pilot license (CPL); airline transport pilot license (ATPL); multi-crew cooperation (MCC); Performance-Based Navigation (PBN); and mission training.

Entrol
FNTP II

Reiser - www.reiser-st.org

<u>Norway</u>. Reiser Simulation and Training GmbH of Berg-Höhenrain, SW of Munich, Germany, has EASA Level D qualification for a full flight simulator for an Airbus Helicopters (ex Eurocopter) H145 twin-engine light utility helicopter at the Norwegian Competence Centre Helicopter (NCCH - www.ncch.aero) in Stavanger.   This trains crews of the Norwegian Air Ambulance AS (NLA - Norsk Luftambulanse) and two flight crews recently demonstrated a 2.5 hour simulation mission that was networked to Reiser H145 Level D simulators at the ADAC HEMS Academy in Bonn/Hangelar, Germany. This included multi-aircraft scenarios and Night-Vision Goggle (NVG) training.

Rockwell Collins Simulation - www.rockwellcollins.com/service/simulation

<u>Finland</u>. Rockwell Collins Simulation & Training Solutions (STS) of Sterling, Virginia, N of Washington Dulles airport, USA, is providing three Level D helicopter simulators for the training centre of Coptersafety Oy at Vantaa, south of Helsinki airport (www.coptersafety.com). These have EP-8100® image generators, liquid crystal over silicon (LCoS) laser projectors with 4k resolution, 240 x 80 degree motion-compatible dome display, night vision goggle (NVG) capability. and additional channels for camera systems, vertical reference window, cargo mirrors and an Enhanced Vision System (EVS). Two of the systems have already been certified by the Finnish Transport Safety Agency.

MILITARY FIXED-WING AIRCRAFT SYSTEMS
For rotary wing systems (helicopters and propeller-driven tilt engine / tilt wings), see later

ASI - www.aerosimulation.com

<u>US Air Force</u>. Aero Simulation Inc (ASI) of Tampa, Florida, USA, won the B-1 Training Systems Program contract award. This involves the sustainment of 35 flight and maintenance training devices for the Rockwell B-1 Lancer bomber aircraft. The training devices are at Dyess AFB, TX; Ellsworth AFB, South Dakota; Sheppard AFB, TX; and at ASI's facilities in Sterling, Virginia, and Tampa, Florida. ASI's team members for this program include BGI LLC and Rockwell Collins Simulation and Training Solutions. Under the contract, ASI will provide Training System Support Center (TSSC) and Contractor Logistics Support (CLS) services and perform trainer modifications for the next 7.5 years.

<u>US Navy</u>. Aero Simulation has been chosen as one of the small business contractors for the $980M Training Systems IV multiple award contract. The TS IV contract is administered by the U.S. Naval Air Warfare Center Training Systems Division (NAWCTSD), headquartered in Orlando, Florida.

ASTi - www.asti-usa.com

<u>Australia</u>. Advanced Simulation Technology inc. (ASTi) of Herndon, east of Washington Dulles Airport, USA, will provide new features for its Simulated Environment for Realistic ATC (SERA) product for Lockheed Martin's AIR 5428 Pilot Training System for the Australian Air Force, Navy and Army. SERA will include Civil Aviation Safety Authority (CASA) phraseology and automatic Digital Aeronautical Flight Information File (DAFIF) data imports.

<u>Undisclosed customer</u>. ASTi has updated five MD-11 simulators for a large cargo operator using its Telestra system. Telestra is a sound and communications system installed in over 100 full-flight simulators (FFS).

Boeing Defense - www.boeing.com/bds
USA. Boeing Defense, Space & Security (BDS), of St. Louis, Missouri, is to supply 120 flight simulators to the US Air Force for the new Boeing T-X advanced training aircraft. The $9.2 billion contract includes 351 aircraft, an aircraft-to-simulator ratio of 2.9:1, the highest so far seen for a training aircraft. There are options to increase the number of aircraft to 475 and presumably also the simulators in proportion. The aircraft will be built at Boeing's base at St Louis (ex McDonnell Douglas). Since simulators for the US Air Force have also been produced at the St Louis facility for many years, this is probably where the T-X simulators will be produced. These are likely to include a wide-view visual system which could include a dome or partial dome, similar to St. Louis-built air combat simulators.

Boeing Defence Australia - www.boeing.com.au   &   **CAE** - www.cae.com
Australia. Boeing Defence Australia (BDA), headquartered in Sydney, is prime contractor for a new training facility being built at the Royal Australian Air Force (RAAF) Base Edinburgh, north of Adelaide, South Australia. A CAE-built Full Flight Simulator for the P-8A Poseidon maritime surveillance aircraft has just been installed. The facility will be maintained by Boeing Defence Australia, and will deliver nearly 40 courses for the P-8A. This is part of a $5.2 billion investment in the P-8A.

CAE Poseidon Simulators

Boeing Global Services - www.boeing.com/services
US Navy & Australian Air Force. Boeing Global Services, headquartered in Plano, north of Dallas, Texas, has a $194M contract from the U.S. Navy to update P-8A Poseidon training courseware for the US Navy and Australian Air Force. This will be for U.S. Naval Air Stations Jacksonville, Florida, and Whidbey Island, Washing ton State, and Australian Air Force Base Edinburgh, north of Adelaide. The P-8A training system uses classroom instruction, part-task trainers and full flight simulators for pilot and mission crew training. Maintenance training includes courseware, classroom instruction and maintenance simulators.

CAE USA - www.cae.com
USA. CAE USA of Tampa, Florida, has a US$200M contract for C-130H aircrew training for the U.S. Air Force, Marine Corps, and Coast Guard. CAE USA will also manage the C-130H Training Systems Support Center (TSSC) at Little Rock Air Force Base, Arkansas. As well as Little Rock, C-130H training also takes place at Dobbins Air Reserve Base (ARB), Georgia; McChord AFB, Washington State; Minneapolis Air National Guard Base (ANGB), Minnesota; and Cannon AFB, New Mexico. The C-130H program uses 11 full-mission simulators and over 50 other training devices. It is reported that annually, over 11,000 crew members from the US and over 30 other countries are trained.

Cubic Global Defense - www.cubic.com
USA. Cubic Global Defense, headquartered in San Diego, California, USA, has a contract from Lockheed Martin for the Cubic Air Combat Training System (ACTS) for the F-35 Lightning II. Cubic is scheduled to deliver over 500 F-35 training subsystems over the next four years. The ACTS includes the P5 Combat Training System (P5CTS) Internal Subsystem (IS) configuration and P5 ground software. P5CTS is a pod inside the aircraft that relays Time, Space and Position Information (TSPI) between aircraft and the ground for real-time monitoring and recording of data for post flight analysis. Cubic and its principal subcontractor, Leonardo DRS, will produce and maintain the P5CTS system.

DiSTI - www.disti.com
US Navy. Distributed Simulation Technology, Inc (DiSTI) Corporation of Orlando, Florida, USA, has been selected by the Naval Air Warfare Center Training Systems Division (NAWC TSD) as one of the small business contractors for the $980M Training Systems IV multiple award contract. This is to support NAWC training devices, systems for Instructional Systems Development (ISD), and Training Systems Support. DiSTI will use its VE Studio and GL Studio development tools.

Environmental Tectonics (ETC) - www.etcusa.com
US Air Force. Environmental Tectonics Corporation (ETC), headquartered in Philadelphia, USA, has achieved full operational capability for a human-rated centrifuge at the 711th Human Performance Wing of the U.S. Air Force Research Laboratory (AFRL), Wright-Patterson Air Force Base, Ohio. This enables training up to 9G with the object of preventing G-induced loss of consciousness (G-LOC).

FAAC - www.faac.com
Taiwan. FAAC Incorporated of Ann Arbor, W of Detroit, Michigan, USA, has a three-year, $1.9M contract to continue providing support for the Taiwan Training Range. FAAC will deliver SimBuilder™ simulation software, new weapon models, on-site training and support services. SimBuilder models weapons and Integrated Air Defense systems and will be applied to the existing Air Combat Environment for Testing and Training (FACETT®) system. SimBuilder has modules for air-to-air, surface-to-air, surface-to-surface, and air-to-surface.

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

USA and Australia. FlightSafety International (FSI) Simulation, headquartered at Broken Arrow, Tulsa, Oklahoma, is to supply Aircrew Training Systems for the C-17 Globemaster III under a contract with aircraft manufacturer Boeing. This will be for 15 U.S. Air Force Air Mobility Command locations and the Royal Australian Air Force base in Amberley, SW of Brisbane on the east coast of Australia. FlightSafety is the manufacturer of the current in-service C-17 Weapon Systems Trainers, and the contract includes upgrades to them including visual systems, program management, aircrew instruction, courseware development, and on-site support.

US Air Force. FlightSafety International (FSI) Simulation, headquartered at Broken Arrow, Tulsa, Oklahoma, and Global Simulation Incorporated are to provide 10 Mixed Reality Training Systems for the T-38C Northrop Talon advance trainer. These will be installed at the 80th Flying Training Wing, Euro-NATO Joint Jet Pilot Training (ENJJPT), Sheppard AFB, Texas, in Q1/2019. Visual cues are through a headset using FSI VITAL 1100 image generation. The system will be transportable and can be operated without an internet connection.

KBRwyle - www.kbr.com

US Navy. KBRwyle inc, headquartered in Houston, Texas, USA, is to provide annual centrifuge-based training for U.S. Navy and Marine Corps aircrew under a five-year contract from the Naval Air Warfare Center Training Systems Division (NAWCTSD) in Orlando. This will include about 600 aircrew and will include classroom instruction and training in the company-operated man-rated centrifuge. Most of the training will take place at KBRwyle's facility at San Antonio, Texas. This follows the company's 2013 Navy contract for high-G training. The company performs similar training for Air Force fighter pilots and combat systems officers.

L3 CTS - www.l-3com.com

UK. L3 Commercial Training Solutions (L3 CTS), headquartered at Crawley, S of London Gatwick airport, UK, is to provide multi-engine courses for Royal Air Force (RAF) pilots after they have completed initial flight training. There will be an introduction course followed by Multi-Crew Cooperation (MCC) training using flight simulators at the L3 UK Academy. This is said to be similar to a Commercial Pilot License (CPL) with Instrument Rating (IR) and MCC qualification.

Leonardo - www.leonardocompany.com

Italy. The Leonardo company, headquartered in Rome, has provided its Realistic Intelligent Agent Computer Environment (RIACE) system to the Italian Air Force. This is a distributed training system that generates realistic operational scenarios for pilots at different bases. A merged synthetic environment can include aircraft such as the Eurofighter, Tornado, Alenia M-346 Master and Predator UAV. Systems can be added such as Joint Terminal Attack Controller (JTAC), missile-defence and Command and control systems. The Integration Test Bed at Pratica di Mare air base can also be incorporated.

UK. The company has opened the Leonardo Academy in Lincoln after an investment of over 2M UK pounds. This is for training in Cyber and Electromagnetic Activities (CEMA) and up to 150 students can train at the same time. Leonardo has had a base in Lincoln since 2009 at the Royal Air Force Air Warfare Centre at Waddington, on the south side of Lincoln. The academy will deliver a range of CEMA courses, some of which will contribute to a MSc qualification.

MILO - www.milorange.com

USA & UK. MILO Range Training Systems of Ann Arbor, W of Detroit, Michigan, USA, part of Arotech Corporation's Training and Simulation Division, received a $2.5M award for systems for the U.S. Air Force. MILO will provide the MILO Range Theater 300, Range Theater 180 and Range Advanced systems. These will be used to train personnel at USAF Global Strike Command (AFGSC) locations, USAF security forces and law enforcement personnel. AFGSC is responsible for three ICBM wings; the bomber force including B-52, B-1 and B-2 wings; the Long Range Strike Bomber program; and Air Force Nuclear Command, Control and Communications (NC3) systems. MILO Range Systems have will be used at Dover AFB, Delaware; Edwards AFB, California; Hurlburt Field, Florida; Lackland AFB, Texas; and US bases in the UK at Croughton and Mildenhall.

Northrop Grumman - www.northropgrumman.com

USA. Northrop Grumman Corporation, headquartered in Falls Church, Virginia, USA, has opened an AC-208 Training Center of Excellence™ at Meacham Airport in Fort Worth, Texas. This is to provide classroom instruction, aircrew and maintenance training on the Northrop Grumman AC-208 Eliminator™ (Armed Caravan) aircraft. The 5,000 square-foot facility is part of Northrop Grumman's Contractor Logistic Services (CLS) program.

Plexsys - www.plexsys.com

US Air Force. Plexsys Interface Products, Inc., of Portland, Washington State, USA, is to deliver hardware, software and support services to Tinker Air Force Base in Oklahoma under the USAF Enhanced Control and Reporting Center (CRC) contract. This will add battlespace simulation to the existing USAF operational command and control (C2) system. Plexsys will integrate its ASCOT, DLI, and Sonomarc products with the Air Force CRC TYQ-23A Tactical Air Operations Module and with the 752nd Operations Support Squadron's existing Battlespace Command and Control Center (BC3) training system with its seven Operator Work Stations (OWS).

US Navy. Plexsys is to provide its SonoMarc communications simulation system for the U.S. Navy Aviation Distributed Training Center (NADTC) 2.0 Program. It will be used for Fleet Synthetic Training - Aviation (FST-A). Up to three NADTC Operation Centers (NOCs) will be delivered to Naval Air Station (NAS) Oceana, Virginia, with options for NAS North Island, California, and Marine Corps Air Station (MCAS) Iwakuni, Japan.

QuantaDyn - www.quantadyn.com

US Air Force. QuantaDyn Corporation of Herndon, Virginia, USA, E side of Washington Dulles airport, has delivered its Joint Terminal Control (JTC) Training and Rehearsal System (TRS) to the U.S. Air Force Distributed Mission Operations Center (DMOC) at Kirtland Air Force Base in New Mexico. This will be used by the 705th Combat Training Squadron at the DMOC.

TRU Simulation - www.trusimulation.com

US Navy. TRU Simulation + Training Inc, headquartered at Charleston, South Carolina, USA, is to supply flight training systems as part of a $980M contract from the U.S. Naval Air Warfare Center Training Systems Division (NAWCTSD) in Orlando, Florida. This is part of Training Systems Contract IV with a period of up to nine years, and allows NAWCTSD to quickly acquire new training systems and associated services.

US Air Force - www.airforce.com

US Air Force. US Air Force Air Education and Training Command (AETC) has introduced a simulator phase and check ride before flying their training aircraft. The new syllabus uses 11 simulators for a single block of training before flying the aircraft, compared to using the simulators over a 3-4 month period together with training on the aircraft.

US Navy - www.navair.navy.mil/nawcad/usntps

USA. The US Naval Test Pilot School at the Naval Air Station (NAS) Patuxent River, Maryland, SE of Washington DC, has introduced a simulator for their new Airborne Systems Training and Research Support (ASTARS) III aircraft. The aircraft is a C-26A Metroliner with crew stations for airborne tests pf Navy sub-systems. The original ASTARS aircraft is a P-3; ASTARS II is a Saab 340.

Williams Engineering - www.williamsf1.com

UK. Williams Advanced Engineering, based at Wantage, south of Oxford, UK, has developed a cockpit simulator for BAE Systems facility at Warton in the NW of England. This is to be used to develop cockpit designs for future fast jets. The twin-seat cockpit simulator includes re-configurable interactive screens, and can simulate Hawk, Typhoon and future aircraft.

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

CAE - www.cae.com

New Zealand. CAE, headquartered in Montreal, Canada, is to deliver a 700MR Series fixed-base flight training device (FTD) for the NH90 helicopter to RNZAF Base Ohakea in 2020. Maintenance and support will be included and the total contract value is over 50M Canadian Dollars. CAE launched its 700 Mission Reality (MR) Series FTD at the UK Farnborough air show in July. The RNZAF NH90 FTD will have the CAE Medallion-6000XR image generator, a 240 x 88 degree display, and a dynamic seat for vibration and motion cueing.

Frasca - www.frasca.com

US Navy. Frasca International Inc of Urbana, S of Chicago, USA, is to supply ten Flight Training Devices (FTDs) for the TH-57 Sea Ranger helicopter to Naval Air Station (NAS) Whiting Field, north of Pensacola, Florida. This includes seven Level 7 and three Level 6 devices. The level 7 FTDs will have Frasca's compact 6-axis Motion Cueing System (FMCS™), and a 240 x 70° visual display that includes chin windows and an NVG capability. The Level 6 FTDs will have a 180 x 40° display and a vibration system. There will also be a remote control station where personnel can act as an instructor or Air Traffic Controller. Image Generation will be from Aechelon Technology's pC-NOVA™ system (www.aechelon.com/pc-nova).

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

Japan - US Marine Corps. FlightSafety International (FSI) Simulation, headquartered at Broken Arrow, Tulsa, Oklahoma, is to supply Flight Training Devices for the Bell AH-I Z Viper attack helicopter and Bell UH-1Y utility helicopter at the Marine Air Corps Station Futenma, Okinawa, in a contract from the US Naval Air Warfare Center Training Systems Division (NAWC TSD) in Orlando. The training devices will have VITAL 1100 Image Generators and a dome display with 270 x 80 degree view. The vertical view is 30 degrees up and 50 degrees down, allowing for the angle-of-look of helicopter pilots in low-level operations.

US Air Force. FSI is building training systems for the HH-60W Combat Rescue Helicopter for delivery in 2019 under a contract with Sikorsky. A Weapons System Trainer (WST) will be based at Kirtland Air Force Base, New Mexico, home of the HH-60W training unit, and an Operational Flight Trainer (OFT) will be at Moody Air Force Base, Georgia, site of the first operational unit. Six aircrew and maintenance training devices will be produced. The aircrew trainers will be able to link with other simulators on the Combat Air Forces Distributed Mission Operations (CAF DMO) network, and pilots and mission crew will be able to train together. The HH-60W is replacing the H-60G Pave Hawk for combat search and rescue and personnel recovery for all U.S. military services.

USA - Coast Guard. FSI is to supply new training systems for the Bell TH-57 Sea Ranger helicopter for training pilots of the Navy, Marine Corps and Coast Guard. FlightSafety is the prime contractor for the TH-57 Aircrew Training Services program and will manage the replacement of the current training devices, deliver instruction and Contractor Logistics Support. The new Level 6 and Level 7 Flight Training Devices, Image Generators, visual databases and projectors are scheduled to enter service in February 2019.

USA - Marine Corps. FSI is to update four existing Flight Training Devices for the Bell AH-I Z Viper attack helicopter and Bell UH-1Y utility helicopter at Camp Pendleton Marine Corps Base, north of San Diego, California. This will include a visual display dome with large vertical Field of View, and 6-axis motion.

UNMANNED AIR SYSTEMS (UAS) AND VEHICLES (UAV)

Boeing - www.boeing.com

USA. The Boeing Company, headquartered in Chicago, USA, and Robotic Skies (www.roboticskies.com) headquartered in Albuquerque, New Mexico, are to develop services for the UAS market. This will include ground support and training. Robotic Skies is a provider of support services for UAS.

CAAi - www.caainternational.com

UK. CAA International Ltd (CAAi), the training arm of the UK Civil Aviation Authority (CAA) headquartered at Gatwick Airport, south of London, UK, launched a training course on the regulation of unmanned aircraft systems (UAS). The course will cover the regulatory framework for UAS operations and how existing regulations apply to UAS operations in the commercial and leisure areas.

See: https://caainternational.com/training-services/our-training-courses/uas-training/

AIR CONTROL SYSTEMS
Military and civil air control systems including Air Traffic Control

Adacel - www.adacel.com

Sri Lanka. Acadel Air Traffic Management of Dorval, Montreal, Canada, has installed an Air Traffic Control (ATC) Tower and Radar simulation system at Sri Lanka's Airport & Aviation Services Civil Aviation Training Center. This includes individual and team training and can be operated independently or integrated. The project was completed with the assistance of local agent Access International (Pvt) Limited (www.access.lk).

Plexsys - www.plexsys.com

USA. Plexsys Interface Products, Inc., of Portland, Washington State, USA, delivered a third set of Sonomarc Instructor Link software and touchscreens to DELEX Systems, a subsidiary of Zenetex LLC. DELEX uses Sonomarc for radio and intercom simulation at their Oklahoma City Air Traffic Control (ATC) and Ground Control Intercept (GCI) training centre. Sonomarc allows environmental sound effects to be added to increase realism.

QuantaDyn - www.quantadyn.com

USA. QuantaDyn Corporation of Herndon, Virginia, USA, E side of Washington Dulles airport, has delivered a Joint Terminal Attack Controller (JTAC) Training System (AAJTS) to the 138th Combat Training Flight (CTF) at Will Rogers Air National Guard Base in Oklahoma City.

Riptide - www.riptidesoftware.com

US Marine Corps. Riptide Software Inc, of Oviedo, NE of Orlando, Florida, USA, has a contract from the US marine Corps for the Supporting Arms Virtual Trainer (SAVT) together with teammates Cole Engineering of Orlando (http://coleengineering.com) and Assured Information Technology, also of Orlando (www.aitengineering.com). SAVT is for training Joint Terminal Attack Controllers (JTAC), Forward Observers (FO), and Forward Air Controllers (FAC), in Close Air Support (CAS) operations. It trains Tactics, Techniques, and Procedures (TTPs) for Artillery and Mortar support, Naval Surface Fire (NSF) and Tactical Air (TA) in joint operations. SAVT training systems are at: MCB Camp Pendleton, California; MCAGCC Twentynine Palms, California; MCB Kaneohe, Hawaii; MCB Camp Lejeune, North Carolina; MCB Camp Hansen, Okinawa, Japan; MCAS Yuma, Arizona; and the SAVT Test Berth in Orlando, Florida.

UFA - www.UFAinc.com

US Army. UFA, Inc., of Burlington, NW side of Boston, Massachusetts, USA, has delivered an ATTower® simulator to Libby Airfield, Fort Huachuca, SE of Tucson, Arizona. This has four visual channels for visual control and a Fixed Based Precision Approach Radar (FBPAR) system for instrument approaches. The simulator includes UFA's ATVoice® Voice Recognition system and ATView® Image Generator.

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

US DoD - www.defense.gov

Ukraine. The USA Department of Defense (DoD), headquartered in The Pentagon, Washington DC, is to provide Ukraine forces with $200M worth of training, equipment and advisory services. This will include command & control systems, secure communications, mobility and night vision aids, and military medical systems.

LAND SYSTEMS - *Simulators and training systems for the land environment*
            (except Medical Training, which follows this section)

Aptima - www.aptima.com

USA. Aptima of Woburn, NW of Boston, Massachussetts, USA, has a $168,000 Other Transaction Authority (OTA) agreement from the US Army to develop a methodology that aligns current Army simulation training systems with live-fire training.

ASTi - www.asti-usa.com

USA. Advanced Simulation Technology inc. (ASTi) of Herndon, east of Washington Dulles Airport, USA, is to supply its Voisus simulated radio system to the U.S. Army. This is for 30 simulators in the Stryker Virtual Collective Trainer (SVCT) programme. Voisus is a suite of communications and sound products with simulation features, such as interoperable voice comms and synthetic 3D sound. ASTi will deliver hardware replications of Stryker Full-Function Crew Station (FFCS) control panels and PRC-119 ASIP radios. Voisus will integrate with the Army's military headsets and Games For Training (GFT) system.

Bagira - www.bagirasys.com

Israel. Bagira Systems, headquartered in Holon, south of Tel Aviv, Israel, has an $18.6M contract to supply and operate its upgraded JOBSS (JOint-fires BattleSpace Simulator) at several Israeli Defence Forces (IDF) training sites. Bagira

is also to supply and operate HCTs (Howitzer Crew Trainers) at the IDF National Training Center. The simulators are part of Bagira's Digital Dust programme which integrates Bagira simulators into one unified environment. JOBSS will be delivered to the National Training Center, the Artillery School, the Combat Intelligence Collection School and the School for Infantry Corps Professions and Squad Commanders. HCTs will be delivered and operated at the National Training Center. JOBSS and the HCTs allow joint training of all participating forces. Digital Dust is Bagira's concept for Live, Virtual and Constructive (LVC) training and uses the company's B-One simulation system.

Baguira Joint Fires

Charles River - www.cra.com

USA. Charles River Analytics Inc (CRA), of Cambridge, Massachusetts, USA, has an additional $1M contract from the U.S. Missile Defense Agency (MDA). This is for the CRA Modeling Operator Reasoning and Performance for

Human-in-Control Simulation (MORPHIC). The MDA will use MORPHIC to create models of human behavior for simulation and CRA will use Hap architecture for behaviour modeling including cyber adversaries, physiological factors and the development of tutoring algorithms.

Cubic Global Defense - www.cubic.com
Canada. Cubic Global Defense, headquartered in San Diego, California, USA, has a $27M contract to deliver Urban Operations Training Systems (UOTS) to Canadian Forces Base (CFB) Gagetown, east of Quebec, and the Canadian Manoeuvre Training Centre (CMTC) Wainwright, SE of Edmonton, Alberta. This is part of the Canadian Weapon Effects Simulation (CWES) programme. UOTS includes a tracking system; shoot-through-wall capability; special effects including smoke, smell, light, sound, plus improvised explosive device (IED) and grenade simulators. Completion is scheduled for CFB Gagetown in October 2019 and CMTC Wainwright in September 2020, to support Exercise Maple Resolve in 2021.

Cubic - www.cubic.com & **4C Strategies** - www.4cstrategies.com
Sweden & USA. Cubic Corporation, headquartered in San Diego, California, USA, and 4C Strategies, headquartered in Stockholm, Sweden, have developed the Exonaut® training and exercise management system. This can be used with the Cubic Long Term Evolution (LTE) network for army field training. Users can operate Exonaut via the LTE connection in remote training locations. This will allow exercise managers and exercise participants to monitor and control training events in real-time from smart phones or tablets. Users provide evidence for After Action Review based on RMP Dashboard, the system data visualization and analytics module.
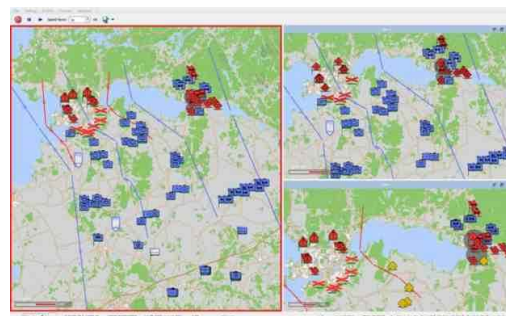
DTS - http://dtsweb.com
US Army. Diversified Technical Systems, headquartered in Seal Beach on the S side of Los Angeles, California, USA, has developed a Warrior Injury Assessment Manikin (WIAMan) for the US Army Research Laboratory (ARL) Engineering Office. This is an instrumented manikin to be used in underbody blast testing of ground vehicles. Development will continue by the Army Program Executive Office Simulation, Training and Instrumentation (PEO STRI) together with Army Test and Evaluation Command and the Army Tank Automotive Research, Development and Engineering Center.

FAAC - www.faac.com
US Army. FAAC Incorporated of Ann Arbor, W of Detroit, Michigan, USA, has a $10.2M contract from the U.S. Army Contracting Command for its Army Virtual Clearance Training Suite (VCTS). This is for upgrades to 28 in-service VCTS systems.

MASA Group - www.masagroup.net
Belgium. MASA Group, headquartered in Paris, France, has supplied their SWORD war gaming system to the Belgian Army. This is deployed in the simulation centre in Limburg for command-post training at Company and Battalion levels. At Limburg, SWORD works with Virtual Battlespace 3 (VBS3) from Bohemia Interactive Simulations (BIS).

Meggit Training - www.meggitttrainingsystems.com
USA. Meggitt Training Systems (MTS), headquartered in Suwanee, Georgia, USA, has supplied its FATS® 300LE training system to the Miami Police Department. This can replicate real-world situations including domestic family disputes, traffic stops and school shootings. The system includes five 150 x 84 inch screens in a hexagonal format that creates a 300 degree virtual environment. It can support up to 20 simulated law enforcement weapons systems including rifles, pistols and machine guns and non-lethal deterrents including Taser or pepper spray.

Pulau - https://www.pulau.com
US Army & Netherlands. Pulau Corporation, headquartered in Orlando, Florida, is leading Team Pulau in the US Army's $2.4 billion Enterprise Training Services Contract (ETSC). Pulau Corp is the prime contractor and there are 15 subcontractors, including Bagira Systems, headquartered in Holon, south of Tel Aviv, Israel (www.bagirasys.com). ETSC is to provide individual, unit, crew and collective training across the Army, and will also operate simulation sites in The Netherlands as part of the Joint Fires and Effects Training System (JFETS).

QinetiQ - www.qinetiq.com & **Inzpire** -www.inzpire.com
UK. QinetiQ Group plc, headquartered in Farnborough, UK, is to is to become a majority investor in Inzpire Ltd of Lincoln, initially with 85% ownership and an agreement to acquire the remaining 15% after two years. Inzpire will be able to use QinetiQ's distribution channels, and will co-operate in areas such as mission systems and data, human factors, simulation, test and evaluation.

Ravenswood - www.ravenswoodsolutions.com

US Army - Armoured Vehicle. Ravenswood Solutions of Fremont, SE of San Francisco, California, USA, has a $2.2Mcontract from Army Mission and Installation Contracting Command. This is for Ravenswood's FlexTrain Mobile Ground Truth System to be fitted to the Armored Multi-Purpose Vehicle (AMPV). FlexTrain is a GPS-based system that tracks vehicles during training exercises. Earlier in 2018, Ravenswood supported the Multi-Service Operational Test & Evaluation (MOT&E) of the Joint Light Tactical Vehicle (JLTV) program.

US Army - Network Integration. Ravenswood has a $1.3-million contract from the US Army Joint Modernization Command (JMC). This is for Network Integration Evaluation (NIE) at Fort Bliss, Texas and at White Sands Missile Range, New Mexico. Ravenswood will provide its FlexTrain Mobile Ground Truth System, a deployable GPS-based instrumentation system that tracks vehicles, units, and individual exercise entities.

Saab Defence - www.saabgroup.com & **Cervus Defence** - www.cervusdefence.com

UK. Saab Security and Defence Solutions, headquartered in Järfälla, Sweden, is to process data from the British Army Warfighting Experiment (AWE) 18, and Cervus Defence Ltd of Westbury, SE of Bath, UK, is to provide its HIVE training data system. HIVE harvests and categorises training data including outputs from Command and Staff Trainers (CAST), Combined Arms Tactical Training systems (CATT), and Tactical Engagement Systems (TES), plus observer comments. The AWE 18 Autonomous Warrior system will test a range of prototype unmanned aerial vehicles (UAV) and ground cargo vehicles with a goal of reducing the danger to troops during combat, and soldiers will evaluate the effectiveness of robotic and autonomous systems (RAS).

SAIC - www.saic.com

US Army. Science Applications International Corporation (SAIC), headquartered in McLean, Virginia, NW side of Washington DC, USA, has a $52M task order from the U.S. Army General Services Administration. This is to support the Maneuver Center of Excellence at the Maneuver Battle Lab in Fort Benning, Georgia. SAIC will support combined arms live, virtual, constructive (LVC) training and game-based systems. These focus on Infantry, Stryker and Armor brigade combat teams (BCTs) and reconnaissance formations.

Valiant Services - www.valiantintegrated.com

US Army. Valiant Integrated Services headquartered in McLean, Virginia, NW side of Washington DC, USA, has a $140M contract with the U.S. Army. This is for Mission Command system training at over 50 National Guard locations.

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

Alion - www.alionscience.com

USA. Alion Science and Technology of McLean, Virginia, NW side of Washington DC, USA, has a $980M Training Systems Contract (TSC) IV with the Naval Air Warfare Center Training Systems Division (NAWCTSD) in Orlando, Florida. This is for design, test and evaluation (T&E), production and modification of training systems, and delivery of training and associated services. This is part of a programme to integrate training systems into the Navy Continuous Training Environment (NCTE).

BMT - www.bmtscd.com

UK. BMT Ship & Coastal Dynamics, headquartered in Teddington on the SW side of London, UK, has been awarded Class A, B, C, and S certification for its Rembrandt ship navigation simulator system from DNV GL of Norway (www.dnvgl.com). This complies with STCW 78 and the DNVGL-ST-0033 Maritime Simulator Systems standard and includes the use of BMT's tug simulator including for inland waterway navigation. DNV GL awards are Class A (full mission), Class B (multi-task), Class C (limited task), and Class S (special tasks).

CAE USA - www.cae.com

USA. CAE USA of Tampa, Florida, USA, has been selected as a prime contractor under the U.S. Navy Training Systems IV indefinite delivery/indefinite quantity (ID/IQ) contract. This is for a range of training systems and services up to 2027. CAE USA is also combining with Pinnacle Solutions Inc of Huntsville, Alabama (www.pinnaclesolutionsinc.com) in a joint venture called Xebec for other elements of the TS IV contract, see below under Pinnacle.

Modest Tree - http://modesttree.ca
Canada. Modest Tree Media Inc of Halifax, Nova Scotia, E coast of Canada, is to provide a training solution for the MAN engines on Royal Canadian Navy's new Arctic and Offshore Patrol Ships. Each ship has two MAN 4.5 megawatt diesel/electric propulsion engines will propel each Arctic and Offshore Patrol Ship. MAN is a subcontractor of GE Canada, the integrator for the Arctic and Offshore Patrol Ship Integrated Propulsion System and Irving Shipbuilding is the prime contractor and shipbuilder.

Pinnacle - www.pinnaclesolutionsinc.com
USA. Pinnacle Solutions Inc of Huntsville, Alabama, is combining with CAE USA of Tampa, Florida (www.cae.com) in a joint venture called Xebec. This is for a range of training systems and services up to 2027, part of the U.S. Navy Training Systems IV indefinite delivery/indefinite quantity (ID/IQ) contract.

Singapore Navy - https://www.mindef.gov.sg/oms/navy/
Singapore. The Republic of Singapore Navy (RSN) has opened a simulation centre at Tuas Naval Base on the west of Singapore island. This is based on the retired Republic of Singapore Ship (RSS) Daring, which has been turned into a training centre.   The simulation centre was developed by the RSN and Defence Science Technology Agency (www.dsta.gov.sg) and includes a replica of a ship's Integrated Command Centre and provides crew with training that has been said to shorten training time by as much as 60 percent.

US Navy - www.navy.mi
USA. The US Navy Surface and Mine Warfighting Development Center (SMWDC) has developed the Live Fire with a Purpose (LFWAP) missile exercise (MSLEX) system including some 30 training scenarios. SMWDC is a subordinate command of Commander, Naval Surface Force, U.S. Pacific Fleet. LFWAP is a training system designed to counter threats and develop tactics, techniques and procedures (TTPs), pre-planned responses (PPRs) and battle orders.

CORPORATE AND INTERNATIONAL NEWS
International Agreements, Corporate Acquisitions, Partnerships and Changes

ACCEL Flight Simulation - www.accelflightsimulation.com & **MPS** - www.flymps.com
China & Netherlands. ACCEL Flight Simulation Co Ltd of Tientsin, SE of Beijing, and Multi Pilot Simulations B.V. (MPS) of Groenekan, Utrecht, The Netherlands, have partnered to market simulation and training systems such as Airbus A320 and Boeing 737 training devices.   ACCEL is a joint venture between Haite High-Tech of Chengdu, China and Rockwell Collins, headquartered in Cedar Rapids, Iowa, USA.

CAE USA - www.cae.com/defence-security/regional-operations/cae-usa
USA. CAE USA Mission Solutions Inc., a subsidiary of CAE USA of Tampa, Florida, acquired Alpha-Omega Change Engineering Inc, headquartered in Williamsburg, Virginia (AOCE - www.aoce.com), for about US$29M. AOCE provides aircrew training, operational test and evaluation, and engineering support, to the U.S. Department of Defense.

EDM - www.edm.ltd.uk
UK. Engineering Design & Models (EDM) of Manchester, UK, has acquired RP Aero Systems of Littlehampton on the south coast of the UK (www.rp-aerosystems.com). RP Aero will continue to operate its brand and will complement EDM business.

Eyevis UK - www.eyevis.co.uk
UK, Germany. Eyevis UK Ltd of Burnley, N of Manchester, UK, has changed its name to Ultimate Visual Solutions (UVS - www.ultimatevs.co.uk). This follows the acquisition of eyevis GmbH in Germany by the Leyard group. UVS remains the UK partner for eyevis GmbH products and services and continues to supply and maintain eyevis systems, in addition to Leyard products.

FlightSafety - www.flightsafety.com & **TRU Simulation** - www.trusimulation.com
USA. FlightSafety International (FSI), headquartered at La Guardia Airport, New York, and TRU Simulation + Training Inc, headquartered at Charleston, South Carolina, have signed a a letter of intent to form a joint venture (JV). The two companies will combine their assets and capabilities, including simulator and courseware. TRU will be the exclusive supplier of new simulators for aircraft manufactured by Textron Aviation, and will continue its other operations. The transaction is expected to close in the next several months, subject to documentation and regulatory approval.

Halldale - www.halldale.com
UK & USA. Halldale Media Group, of Fleet, W of Farnborough, UK, and Lake Mary, Florida, USA, has updated its corporate website (above) with a selection of executive briefs, a company directory and censuses of simulators for civil airlines and military aviation. It also has links to three magazine websites and four event websites.

Leonardo - www.leonardocompany.com

Italy. Leonardo company, headquartered in Rome, Italy, is to purchase 98.5% of Vitrociset SpA, also headquartered in Rome (www.vitrociset.it), of which Leonardo currently holds a 1.5% stake. Vitrociset provides system design, simulation and training, in the defence, security, space and transport markets.

Spatial Composites - www.spatial-composite.com

USA & UAE. Spatial Composite Solutions FZE, Jebel Ali Free Zone, Dubai, UAE, a provider of cabin crew training simulators, is opening a U.S. office near Los Angeles, California.

Zen Technologies - www.zentechnologies.com

USA & India. Zen Technologies Limited of Hyderabad, India, has opened an office in the USA. This is Zen Technologies USA Inc, in Washington DC.

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).

Barco - www.barco.com

Belgium. Barco NV, headquartered in Courtrai (Kortrijk), west of Brussels, Belgium, launched RigiFlex, a flexible screen for Power Walls. It can be rolled up for transportation but is rigid once installed. RigiFlex is available in sizes up to 33 x 13 ft. It uses polymer fabric and is less than 1 mm thick with a weight of 0.5 kg per square metre.

BISim - www.bisimulations.com

Czech Republic. Bohemia Interactive Simulations (BISim), headquartered in Prague, Czech Republic, has released its Gears Studio development environment. This enables software developers to create components from a template, edit APIs with real-time error reporting, manage groups of components, edit components from Microsoft Visual Studio, and integrate with other servers for integration and testing. See www.gearsstudio.com

CAE - www.cae.com

Canada. CAE, headquartered in Montreal, launched the Medallion MR (Mission Reality) e-Series Visual System. This is a turnkey visual solution optimised for fast-jet and helicopter training. It includes a back-projected dome display with 360 and 225 degree options, laser projectors, and CAE Medallion imagery. Other features include head movement compensation to reduce parallax errors; 3D depth perception through active eyewear; night-vision goggle (NVG) compatibility; and support for the Open Geospatial Consortium Common Database (OGC CDB).

MASA Group - www.masagroup.net

USA. MASA Group, headquartered in Paris, France, has supplied MASA SWORD licenses to Parsons Corporation (www.parsons.com) headquartered in Washington DC, for operations research and evaluation of weapon platforms. The AI-based simulation software provides training and analysis for military and emergency management scenarios. Parsons will use the software to change weapons, sensors, and weather conditions in order to analyse effects.

Plexsys - www.plexsys.com

USA. Plexsys Interface Products, Inc., of Portland, Washington State, USA, has released version 4.5 of its SonoMarc and PLEXComm communications software. This includes two new products, Operator Link and Chat Link, also an upgrade to its Instructor Link product, and modelling improvements by adding Fresnel zones and Weather effects. With the Instructor Link upgrade, there is now a single location, the Canvas, to interface with communications channels. Canvas gives a common interface to Radios, Intercoms, Jammers, Public Address, Party Lines, and Operator/Console monitor channels.

RSi - www.rsi-visuals.com

USA. Redifun Simulation inc (RSi) Visual Systems of Euless, between Dallas and Fort Worth, Texas, USA, has ISO 9001:2015 quality management certification from Bureau Veritas (https://group.bureauveritas.com) headquartered in Neuilly-sur-Seine on the west side of Paris. This is for Redifun image generators, optical display systems and airport databases. This certification advances RSi's previous ISO 9001:2008 certification.

Word Count:

Sections	Words	%	Aviation Sections	Words	%	Air	Words	%
Editorial & Events	972	8.2						
Aviation Systems	7944	67.0	Civil Fixed Wing	4247	35.8	Civ total	4646	39.2
Space Systems	0	0.0	Civil Rotary Wing	399	3.4	Mil total	2809	23.7
Multi role Systems	66	0.6	Mil Fixed Wing	2215	18.7	RW total	993	8.4
Land Systems	1333	11.2	Mil Rotary Wing	594	5.0			
Medical Systems	0	0.0	UAVs	116	1.0			
Maritime Systems	538	4.5	ATC & Air Control	373	3.1			
Corporate changes	472	4.0	**Total Air Sections**	**7944**	67.0			
Simulation Systems	434	3.7						
Word count	95	0.8						
Total	**11854**	100.0						