



Friday, 10 February 2017

SEARCH (TRANSLATE) AND DESTROY

Search and Destroy is probably the most famous song of the iconic punk-rock band of the early 70's: **The Stooges**. It was released in **1973**, as part of their third album, interestingly titled... **Raw Power!** And the chorus was going like this:

*♪ I'm a street walking cheetah
With a heart full of napalm
I'm a runaway son of the nuclear A-bomb
I am a world's forgotten boy
The one who searches and destroys ♪*

Speaking of "forgotten boys that search and destroy", **two very interesting articles** were published this week, dealing with the **fight against Daesh from the air**. They mention a little known but crucial asset used over Syria and Iraq: **Jamming and Intercept platforms**.

On Feb. 6th, **the Air Force Times** described the mission of the **EC-130H Compass Call**, one of the Air Force's most powerful electronic attack weapons. Of course, it has less "Raw power" than other special mission **C-130 gunship variants**; such as the Spectre, the Stinger II or the Ghost Rider with their scary **20 to 40mm cannons** and insane **105mm M102 Howitzer** on board! Those gunship aircraft were said to be more feared by talibans in Afghanistan than the usual fighters-bombers; notably because they are **used at night and likely simultaneously with Special Forces operations**... Maybe **Iggy Pop** was thinking about them, when he was singing:

*♪ Honey gotta strike me blind
Somebody gotta save my soul
Baby, penetrate my mind! ♪*

That said, these systems are critical in **locating and disrupting enemy's command and control nodes**. As **Lt. Col. Josh Koslov**, commander of the 43rd Expeditionary Electronic Combat Squadron, tells the Air Force Times: "*The bottom line is, if you can't talk, you can't fight. It's that simple. Our job is to create massive confusion in the Daesh network.*" It goes even further than that, since everything that radiates from the ground can be tracked and taken down, including **drones remotely piloted by ISIS forces**... Which reminds us of Iggy Pop's lyrics:

*♪ Look out honey, cause I'm using technology!
Ain't got time to make no apology
Solar radiation in the dead of night
Love in the middle of a fire fight ♪*

Also on Monday, defense reporter **Jean-Marc Tanguy** published a great report in the French daily **Ouest-France**, about French Air Force operations from a discrete Jordanian Air Base. Among the assets deployed, he focuses on the **C-160 Gabriel**, the French weapon of choice for long-range, persistent airborne intercept and jamming, saying **that linguists on board help discriminate languages**. Koslov also praises his cryptologic linguists: "*Their ability to tell me [...] what Daesh is doing allows me [and] my crews to prioritize their effects in support of operations of Iraqi allies in order to (search?) defeat and destroy Daesh.*"

The bottom line is that those **venerable platforms** are indeed stuffed with a whole lot of **modern and sophisticated electronics**, but they both need old and scarce **Human expertise**: language. Therefore, both platforms and crews could jointly sing along with Iggy Pop:

*♪ And I'm the world's forgotten boy
The one who's searchin', searchin' to destroy
And honey I'm the world's forgotten boy
The one who's searchin', searchin' to destroy ♪*

"The Bulletin" is a newsletter published by ADIT focusing on international aerospace and defense markets. You will find here a digest and some short analysis of a selection of news picked around the world over the last 7 days.

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SNAPSHOTS



HAL plans to unveil a mock-up of the **Indian Multi Role Helicopter** at the **Aero India 2017**. The IMRH is a medium class helicopter which will replace **older Mi-8/17** Helicopters from Indian armed forces. (Credit: Indian Daily Defence)



Kratos presented this concept image of **4 XQ-222s** in an attack formation releasing **250-lb-class Boeing Small-Diameter Bombs**. It has a dash speed of **Mach 0.9** with runway-independent, rocket-assisted takeoff and parachute recovery and is designed to mimic adversary aircraft and cruise missiles. (Credit: Kratos)

The Monthly Passenger Traffic Trends

More information with www.id-aero.com



Monthly Traffic data Report (MTdR) is an independent global air traffic indicator. Data is broken down by region and is built up from a monthly compilation of around 1,600 sources, drawn from some 150 airlines. MTdR globally covers more than 90% air passenger miles, including low cost operators.

The MTdR provides monthly raw data, and changes year on year, in a clear and concise format to highlight trends in global air traffic.

<< Highlights >>

December 2016

RPK +8.9%	ASK +7.0%	LF 80.6% +1.4 pt
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December 2016: World air traffic was strong growth. The preliminary air traffic growth indicator is +8.9%.

YTD

RPK +6.5%	ASK +6.6%	LF 80.5% -0.1 pt
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YTD: Traffic growth was +6.5% and load factor decreased by 0.1 point.

RPK: revenue passenger km - ASK: available seat km - LF: passenger

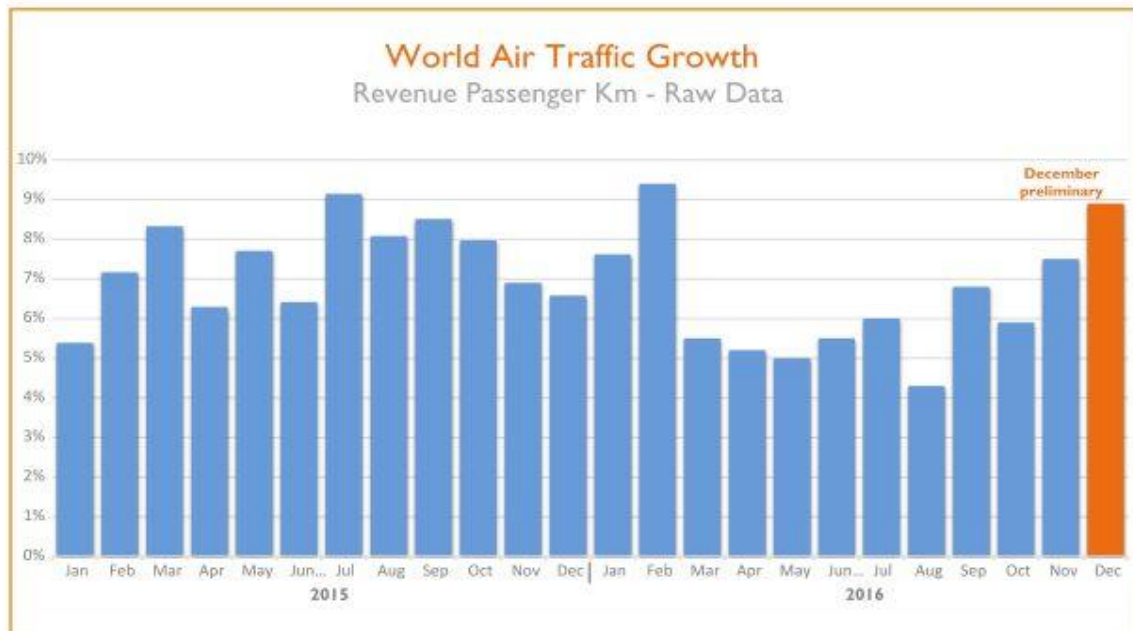
YTD: year to date

Load factor - Monthly: Yr/Yr

World Air Traffic Growth
Change vs. 2015

Change %	RPK	RPK	ASK	ASK	LF	LF	change LF	change LF
2016/2015	monthly	YTD	monthly	YTD	monthly	YTD	monthly	YTD
january	7.6%	7.6%	6.1%	6.1%	79.2%	79.2%	1.1	1.1
february	9.4%	8.5%	10.5%	8.2%	78.3%	78.8%	-0.8	0.2
march	5.5%	7.4%	5.9%	7.4%	80.3%	79.3%	-0.3	0.0
april	5.2%	6.8%	5.5%	6.9%	79.6%	79.4%	-0.2	0.0
may	5.0%	6.4%	5.8%	6.7%	79.2%	79.3%	-0.7	-0.2
june	5.5%	6.3%	5.8%	6.5%	81.3%	79.7%	-0.2	-0.2
july	6.0%	6.2%	6.0%	6.4%	84.3%	80.4%	0.0	-0.2
august	4.3%	5.9%	5.7%	6.3%	84.1%	80.9%	-1.1	-0.3
september	6.8%	6.0%	6.5%	6.3%	81.4%	81.0%	0.2	-0.2
october	5.9%	6.0%	6.4%	6.4%	80.3%	80.9%	-0.4	-0.3
november	7.5%	6.1%	6.5%	6.4%	78.9%	80.7%	0.7	-0.2
december	8.9%	6.5%	7.0%	6.6%	80.6%	80.5%	1.4	-0.1

<< Graphs of the month >>



**POINTS OF VIEW****USA: SHIFTS AND CHANGES IN LINE-UP OF T-X CONTENDERS - FORECAST INTERNATIONAL**

Posted on February 2, 2017 by Ray Jaworowski, Senior Aerospace Analyst at Forecast International.



The U.S. Air Force's T-X advanced trainer program is one of the biggest prizes in the military aircraft market in the near future. This is due to the scale of the program itself: under the program, **the Air Force intends to buy 350 advanced jet trainers to replace its fleet of Northrop T-38Cs**. In addition, the winning T-X aircraft will be in a position to become perhaps the leading competitor in the future global market for advanced jet trainers.

While the T-X program has drawn considerable interest from aircraft manufacturers, **the line-up of contenders has changed in recent weeks**. **Leonardo** had been teamed with **Raytheon** to bid the T-100, a version of the former's M-346 advanced trainer, but **the U.S. company withdrew** from the competition in January 2017. In the wake of the departure, Leonardo is evaluating its options, including whether to proceed with the bid on its own or perhaps find another U.S. partner. The **twin-engine T-100** is powered by **Honeywell F124 turbofan engines**.

Northrop Grumman and **BAE Systems** had teamed to jointly propose a clean-sheet design known as the **Model 400**. However, the two companies have now **opted not to pursue the T-X contract**.

Meanwhile, **Korea Aerospace Industries (KAI)** is partnered with **Lockheed Martin** to propose the **T-50A**, a variant of KAI's T-50 trainer. Lockheed Martin assisted in development of the original T-50. Two T-50A development aircraft are currently **in flight testing**; the first took to the air in June 2016 and the second joined the flight test effort the following month. These two aircraft were produced by KAI in South Korea. However, if the T-50A is chosen for the T-X contract, final assembly of aircraft for the program would occur at Lockheed Martin's facility in Greenville, South Carolina. Major components, such as the wings and fuselage, would continue to be produced in South Korea. **General Electric supplies its F404-GE-102 turbofan engine** for the single-engine T-50A.

Boeing and **Saab** are jointly proposing an **all-new, clean-sheet design** for the T-X program. The two companies have already built two examples of the new aircraft, unveiling them in September 2016. The first of these aircraft made its **initial flight in December 2016**. Designed expressly for the USAF program, the Boeing/Saab aircraft features twin tails, a shoulder-mounted wing, and a **single F404-GE-102 engine**. Boeing is building development aircraft in St. Louis; the company intends to build production aircraft at a yet-to-be-determined location in the U.S. Some portions of the aircraft are manufactured in Sweden by Saab.

A **clean-sheet design** is also being proposed by Colorado-based **Freedom Aircraft Ventures LLC**, a joint venture of Sierra Nevada Corp (SNC) and Turkish Aerospace Industries (TAI). Dubbed the **Freedom Trainer**, the twin-tail, swept-wing aircraft is powered by a pair of **Williams FJ44-4M turbofan engines**.

Contract award for the T-X program may occur in the second half of 2017 or early 2018. Initial Operational Capability is slated for FY24, with Full Operational Capability in FY34. These plans are heavily dependent on funding availability and prioritization, and **delays are certainly possible**.

The **market potential** of the selected T-X aircraft extends beyond the Air Force's 350-unit advanced trainer buy. The USAF imprimatur will make the T-X winner a very strong contender for **sales on the worldwide advanced jet trainer market**.

In addition, **the T-X design could be adapted for use as a light attack aircraft**, thus opening up that market to the winning aircraft as well. Indeed, a light attack version of the aircraft could be a **contender for a possible USAF acquisition to partially replace the A-10 in the close air support role**.

Courtesy of Forecast International.

UK: CORPORATE JET INVESTOR CONFERENCE

The **Corporate Jet Investor conference** was held at the Landmark Hotel in London from the 29th to the 31st of January and **gathered all major actors of business aviation** in one place to talk about the future of private jets, the challenges ahead and the upcoming opportunities.

This conference is a **great networking event** for the business jet sector and was a real success as the room was absolutely packed with delegates, impatient to hear all about business jets under the moderation of **Alasdair Whyte** Editor and co-owner of **Corporate Jet Investor**. Auditors got the chance to participate actively in each presentation, through **Q&A times** or by participating in **interactive polls** allowing the audience to get a sense of what everyone was thinking on various subjects. As an example, the 1st day started on an optimistic note with **63% of the floor feeling "fairly optimistic" about business aviation in 2017, even though 57% of delegates agree to say that business jet sales will never return to 2007/2008 levels**. A great introduction for the 1st two themes: "*where next for Europe*" and "*where next for business aviation*." Among all the interesting presentations that **The Bulletin** had the opportunity to attend were ones about the **future of the market**, the impacts of **Brexit** and the election of **Donald Trump**, or the emergence of **supersonic aircraft**. We were also pretty intrigued by Stephen Friedrich's presentation of what we could call "**the average billionaire**," but what seemed to be the most crucial question of the conference was one about whether the champagne should be canceled... And fortunately, 73% of the delegates answered "no"!

Brexit aside, **Brian Humphries** from EBAA explained that there were **4 main "battles that still need to be fought"**. The first one would be **connectivity and access**, in terms of new technologies but also in terms of airports (regional

airports, mixed airports, runway performance). After this, comes the **environment**, and even if Mr. Humphries reassured everyone saying we're already doing well on environmental issues, **accounting for 1% of emissions**, there is still work to be done, by creating new business models or advancing in new technologies like new engines or biofuel, especially after ATR made a first successful flight powered by such energy. Talking about environment, the regulatory one also presents some challenges like having proportionate **regulation**, managing with every national interpretation of laws, norms and regulations, or working on the matters of aircraft ownership and control. **Perception of the business aviation** is also a problem, most people having a negative image of this market. And it will be everyone's responsibility to demonstrate the necessity and positive economic impact of business aviation. For example, **Private jets contribute \$150mn/y to the US economy and 1.2mn jobs, in Europe it accounts for 371,000 jobs, representing £21bn in wages and salaries.**

Now, as far as **Brexit** is concerned, it is very **hard to determine the consequences** it will have on the business aviation market such as a poll showed during the conference. Indeed, we almost had a perfect split on the effects of Brexit with **52% of the floor believing it is not a disaster for business aviation and 48% believing this is actually a "nightmare"**, this can be completed with another poll, as tight as the previous one, showing that 51% of the delegates see Brexit as a threat while 49% see it as a business opportunity. **Mark Bisset, from Clyde & Co LLP** tried to help us see things clearer with a great presentation on the effects of Brexit, explaining the current situation with the UK being part of the EU, and then providing us with **different possible models for the UK to access the EU internal aviation market**. The UK could join the EEA like Norway, negotiate a bilateral agreement like Switzerland, join the EU's common aviation area like Serbia, or negotiate with each member state directly.

But Brexit is not the only challenge for business aviation: whether it is on the European or the International level, **the election of Donald Trump will bear consequences**. But will the impact be positive or negative? According to panelist **Brian Proctor from the Mente Group**, president Trump will soon bring in new legislation saying that all American's are entitled to a private jet, meaning his election could have a **positive effect**. For other people, such as **Steve Varsano from Jet Business**, we are probably **underestimating the "Trump Bump"**. However, **68% of the floor believes that Trump will have a positive effect on business aviation**. Regarding the future of business aviation on a more international scale, Brian Proctor sees 2017 as being the "year of the MRO," mainly because of significant increase in prebuys and aircraft improvements. **Chad Anderson from Jetcraft** also reassured all the delegates explaining that *"in summary we see growth; it's taking longer than we thought, but it's good."* He even made some predictions, saying that most aircraft deliveries over the next 10 years will be Cessna, followed by Bombardier and Gulfstream, but that in terms of revenue, it would be the top end of the market winning, with Gulfstream in 1st position, followed by Bombardier and Dassault. Mr. Anderson also showed us Jetcraft's 2016 **forecast predictions of 7,879 units to be delivered in the next 10 years**, 60% in North America, followed by 15% in Europe, and **\$248bn revenues, with a peak in 2021.**

On the second day of the conference, panelist **Ernest Edwards from Aerion** decided to accompany us on a time travel to see the future of business aviation through the development of **supersonic jets**. Since the Concorde, the aviation world has been dreaming of making new supersonic jets. **NASA** is working on its **X-planes**, **Spike Aerospace** also has a project of its own, just like Boom which plans on flying from New York to London in a few hours, and they are not the only dreamers. But is it realistic, and who would be interested in buying such aircraft and especially who could afford it? It appears that for the moment, **HyperMach** is still revising the aircraft's preliminary performance and specifications upward to a top speed of Mach 5 at 80,000ft and 7,000nm range but **plans on running its first engine by 2019. Boom is targeting 2023** for its 50-seat trijet that will fly at Mach 2.2. **Aerion** on its side already has a client, **Flexjet**, for its conservative supersonic design with 12 passengers and a cruising speed of Mach 1.4 and also **targets a transatlantic operation in 2023**. There are still challenges ahead before any of these supersonic aircraft can fly and one of them relies in the regulation field. There is currently **no regulation on these types of jets** and it is very unlikely that one will be made soon enough for them to fly in the next 5 years. Thus, whether we will see supersonic jets in 2019 or 2023 remains to be seen, but what is sure is that the future customers for the **20 to 30 jets expected to be delivered annually** will be billionaires and their number seems to be growing in the next years.

So, it appears that billionaires could probably buy supersonic jets in the future, but who are they? **Stephen Friedrich from Rolls-Royce** gave us a great picture of the **"average billionaire"** in its presentation. Billionaires mainly live in **North America, Asia or Europe** (90%). They are **male**, 40 or older, **married** (and will probably stay married), and have **small families** of 2 or 3 individuals. Most billionaires are actually not "that rich" since almost half of them have less than \$2bn. However, 70% can be proud for making such a **self-made fortune**, even though this does not come from nowhere since **90% of billionaires have a Bachelor degree or even higher degrees such as Master and Doctoral**. Now that you have all the ingredients making the perfect billionaire, good luck on becoming one yourself, and don't forget to buy a private jet when you do, maybe a supersonic one, so that all the delegates that attended the conference can keep being optimistic about their business in the future as they are for 2017 with **53% being slightly optimistic and 41% being very optimistic.**



VALUATION

HARRIS CORPORATION: Harris gets in fighting shape (J.P.MORGAN – 2017/02/03)

One could see a dull future for Harris Corporation after **2 divestitures** (IT Services and Caprock) and with **estimates being down**, but J.P.Morgan's analysts know better and believe this will actually help **Harris get "in fighting shape"**. Because the company **sold IT Services and Caprock**, they will now be able to be **"more tightly focused"** and **"divestiture proceeds are driving**

deleveraging, cash return, and lower future pension contributions,” says Seth M. Seifman in the report. With the recent divestitures, **the Mission Network business will move to Electronic segment.** This represents about \$700mn and J.P.Morgan expects about **“\$2.3bn of revenues in 2018.”** This, combined with a **stabilizing business for radio market** and a **growing defense budget**, will contribute to **“solid earnings and cash flow growth.”**

In fact, Harris will experiment **conflicting tendencies** in the radio market. On the **domestic side**, radio sales will see a **“sharp slowdown following 12% growth in 1H,”** and will end the year **“at a low rate before manpack starts driving sales, perhaps by 2Q18.”** To this decrease of domestic radio sales can be added a **flat growth for rifleman sales**, which will imply only **7% domestic radio growth for FY18** before it starts getting better in FY19-20. On the **international side**, an opposite tendency can be seen. **“Sales were down 20% in 1H but should end the year down high single digits, implying strong 2H improvement,”** according to Mr. Seifman, this is mainly due to Europe’s sales that J.P.Morgan estimate to be up 30% in FY17. Overall, **international radio sales should reach \$730mn in FY17**, still 20% down from the 2015 peak.

For these reasons, J.P.Morgan decided to **maintain its target price at \$117** and its **“overweight”** rating. They forecast around **\$950mn of FCF by FY20** thanks to an annual growth estimated at \$50mn from the \$800mn they anticipate for FY17. This is a little **under Harris’ objectives of \$1bn of FCF by FY19-20** but it is still good enough for J.P.Morgan not to worry too much about the company’s future, even though they warn investors on **downside risks** including **“weaker than expected international radio sales [and] weaker than expected performance in the recently acquired Exelis business.”**

PUBLICATION

DEFINING AN APPROACH FOR FUTURE CLOSE AIR SUPPORT CAPABILITIES (THE RAND CORPORATION – JAN, 2017)



Defining an Approach for Future Close Air Support Capability

John Matsumura, John Gordon IV, Randall Steeb

Prepared for the United States Army
Approved for public release; distribution unlimited

▲ AND ▼ IN THE A&D SECTOR OVER ONE WEEK

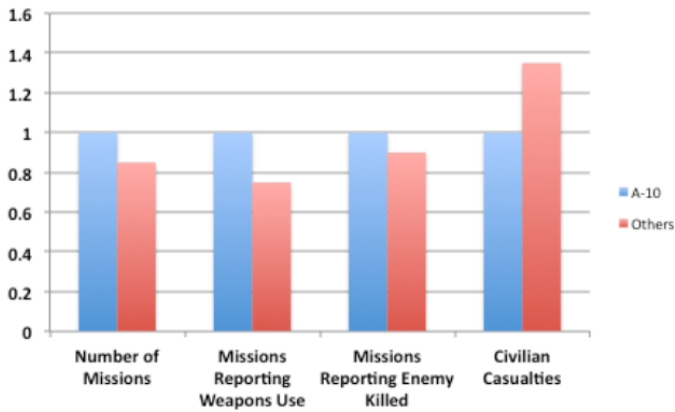
	Δ over 1 week	Thursday closing value
Airbus Group	-0,52%	62,77
BAE Systems	2,46%	7,07
Boeing	-0,10%	163,81
Bombardier	0,78%	2,59
Dassault Aviation	0,61%	1 072,60
Elbit Systems	2,96%	113,26
Embraer	-4,17%	17,47
General Dynamics	1,17%	183,14
Huntington Ingalls	3,03%	198,64
Irkut	-2,30%	10,60
L-3 Communications	1,64%	160,20
Leonardo	-3,33%	11,92
Lockheed Martin	2,33%	256,74
Northrop Grumman	1,57%	232,42
Oshkosh Corp.	-3,55%	67,01
Rheinmetall AG	-2,96%	67,80
Rolls Royce	4,94%	700,50
Raytheon	2,33%	148,19
Saab AB	2,24%	364,80
Safran	1,18%	63,47
Thales	1,39%	89,21
Textron	1,95%	48,01
United Technologies	2,05%	110,40

US Representative, McSally persistently argued that the A-10 Warthog should not be retired before a suitable replacement was found for close air support (CAS). The recently published **RAND report** ordered by the Army Quadrennial Defense Review Office seems to back up his idea.

It all started with the **Air Force proposal to retire the A-10 aircraft** fleet because it is **“no longer survivable on modern battlefields that include increasingly sophisticated and lethal air defenses and that multirole aircraft can perform the CAS mission effectively.”** The report examined the consequences for the Army to do so, and what alternatives could be pursued.

The Air Force plans on retiring the A-10 and canceling its service-life extension program, which could save \$3.7bn over the next 5 years. The USAF would **replace the Warthog with multirole aircraft such as the F-15Es, F-16s, or B-1s** while waiting for the integration of the future F-35A into the **CAS role.** However, the report highlights that **this could “affect the Air Force’s ability to provide a sufficient CAS for future operations”** and that the A-10 **“has been instrumental in providing CAS to ground forces in every major combat operation.”** Indeed, other aircraft could provide CAS, but not as effectively as the Warthog did thanks to **2 specific characteristics** identified in after action reports: **“the direct fire capability of the A-10’s large cannon (GAU-8 30mm) and the morale and deterrent “show of force” effect that the presence of the aircraft over the battlefield creates,”** both enhanced by the capacity of the aircraft to fly at low altitude.

Figure 3.2. Normalized Comparison of A-10 Activity with That of Other Fixed-Wing Platforms (Afghanistan 2002–2012)



SOURCE: Derived from coding of SIGACTS during this period.

Because of the A-10's peculiarities, it cannot be replaced easily and the RAND report advises that "future CAS requirements should be carefully reexamined." This implies that the **A-10 should not be retired before a suitable replacement is found**, such as US Rep. McSally advocated when he declared that "we must have an A-10, F-35 fly-off before any A-10 can be retired. We also must develop requirements for what will eventually replace the Warthog, which needs to be operational before eliminating any A-10 aircraft." In order to define the key capabilities needed on the replacement aircraft, the "new assessment should directly address the needs of the affected services and their visions" and it should lead to **cost reduction**. Therefore, if the current plan can truly answer these requirements and if the expected savings of \$3.7bn is validated by a cost-based analysis, the plan could be adopted, if not, it should be reconsidered. And the decision to eliminate the A-10 should be suspended until a viable replacement is found "to minimize risk to ground forces."

The report identified some leads in the solutions that could be assessed, other than the F-15Es, F-16s, B-1s or F-35A. One solution could be "to convert the A-10 platform into a remotely piloted aircraft" at an estimated cost of \$2mn to \$5mn per aircraft, or to **develop "a new specialized unmanned platform for CAS."** Anyway, it appears that there is no need to take urgent actions on the current A-10 fleet and that the best thing to do is wait for another report, this time assessing all the alternatives available to replace it and the induced costs of each option.

The USAF actually seems to have taken all these considerations into account and decided to **delay the retirement of the A-10 to 2021** at least.

solid military ties that already exist between China and Bolivia and the joint efforts of their countries' leaders in this area, despite the great geographical distance between them. Indeed, the **military cooperation has been going on since 2006** with gunship patrol boats, outboard engines, technology transfer and technical advice as well as the increase of grants in military institutions or the training of official Bolivian astronauts. The **amount of military aid from China to Bolivia is worth \$8mn** and Mr. Ferreira thanked the Chinese government for all their support and assistance.

In July 2016, the **Chinese government donated 31 assault and anti-riot vehicles Shaanxi Baoji** (China Tiger) to the Armed Forces of Bolivia, 5 went to the Bolivian Air Force, 5 to the Bolivian Navy and the remaining vehicles went to the Army. But defense is not the only area of cooperation between Bolivia and China and a few days before the meeting of both Defense Ministers, the two countries signed an **agreement to help Bolivia implement a smart-tech project to improve its public security system**.



They agreed to promote the **BOL-110 Public Security Integrated System Project** in order to facilitate the fight against crime in public areas. On this occasion, the Bolivian President, Evo Morales, thanked China for its unconditional support, saying "we value China's presence in many aspects. China's presence offers cooperation without conditions."

The year 2016 ended with the **signature of a new agreement on military bilateral cooperation, firmed on Dec. 28**, and now both China and Bolivia are expecting the year 2017 to be another good year to maintain and even develop their cooperation, in terms of military but also in terms of **diplomatic and commercial relations**, especially since the establishment of the Forum between China and the Community of Latin American countries and Caribbean States 2 years ago which opened possibilities for **China-Latin America overall cooperation**.

Sources: Ecns.cn, Prensa Latina, Xinhuanet.com, Infodefensa.com and the website of the Ministry of Foreign Affairs of the People's Republic of China

UNLIKELY LINK

CHINA/BOLIVIA: LONG-DISTANCE RELATIONSHIP

Chinese Defense Minister, Chang Wanquan, and his **Bolivian counterpart, Reymi Ferreira** met at the end of 2016 in Beijing and both expressed their will to **bring their military relations "to a new level."** They both praised the

AT-A-GLANCE

CIVIL AVIATION

- ▶ USA: A supplier of Boeing told Flightglobal that discussions have opened over possibly ending 747 productions by the 1st half of 2019 but Boeing says they won't end the production.
- ▶ USA: Caterpillar invested in a San Francisco drone tech startup, Airware. They want to offer drone services to their customers.
- ▶ NEW ZEALAND: The world's longest commercial flight landed in New Zealand on Monday. Qatar Airways' Boeing 777-200LR flew 14,535km from Doha to Auckland in 16h23min.

- ▶ **JAPAN:** Following the multiple delays of the MRJ, Mitsubishi Aircraft's president Hiromichi Morimoto will retire on March, 31 and will be replaced by Hisakazu Mizutani, the current president and CEO of Mitsubishi Heavy Industries' (MHI) Integrated Defense & Space Systems business. Yuichi Shinohara, a MHI senior VP will become Mitsubishi Aircraft's CEO.
- ▶ **SINGAPORE:** Singapore Airlines announced an order for 39 Boeing aircraft worth \$13.8bn. They signed a Lol for 20 777-9 and 19 787-10. The 787-10 will start to arrive in 2020 and the 777-9 will be delivered from 2021.
- ▶ **SOUTH KOREA:** Korean Air named Walter Cho as president and Chief Operating Officer. He was previously the EVP and COO.
- ▶ **CHINA:** Airbus Tianjin will begin assembly of its 1st A320neo in July for a delivery in Sept. Tianjin plans to assemble 4 A320neo per month.
- ▶ **CHINA:** China Southern Airlines will lease 5 Boeing 787-9s from Air Lease Corp. Deliveries will start in the first quarter of 2019 with 3 aircraft and it will be completed with the 2 last aircraft to be delivered in 2020.
- ▶ **CHINA:** Hainan Airlines acquired a 48.2% stake in Tianjin Airlines and is now the controlling shareholder of the company with an 87.3% stake. Both are subsidiaries of HNA Group.
- ▶ **CHINA:** The Chinese medium-carrier C919 will perform its maiden flight in the first half of 2017 according to the agency Chine nouvelle. This represents a 2-years delay.
- ▶ **THAILAND:** Thai Airways appointed Senior Executive Usanee Sangsingkeo as acting president while the carrier is looking for a permanent replacement for the former president, Charnporn Jotikasthira.
- ▶ **MYANMAR:** Jane's reported that Myanmar and Pakistan are in advanced negotiations so that Myanmar can buy and build 16 JF-17 aircraft.
- ▶ **NEPAL:** Nepal Airlines Corporation has formally received 2 new aircraft, one 56-seater MA60 and a Y-12e, from AVIC, Chinese supplier.
- ▶ **INDIA:** Boeing was awarded a \$22bn contract from Spicejet for 155 aircrafts (55 carried over from old orders) with options for 50 more. Deliveries will be held from 2018 to 2024 and about 100 of the planes will be the 737 MAX 8 model.
- ▶ **INDIA:** The Bureau of Civil Aviation Security (BCAS) suspended IndiGo's security training center license on Friday because of alleged lapses in the examination procedure. IndiGo and the BCAS are in discussion to solve the problem.
- ▶ **IRAN:** Iran is about to finalize a deal to purchase 20 ATR passenger aircraft for a valued \$400mn deal. ATR will deliver 3-4 aircraft by March, 20. ATR representatives were due in Tehran on Saturday.
- ▶ **TURKEY:** Turkish Aerospace Industries wants to grow its international presence under new president and CEO Temel Kotil who said "if we

SPEAKERS' CORNER

"This would've happened if Hillary Clinton had been elected president," said Loren Thompson, a defense industry consultant, talking about the reduction of the F-35 price. (*Politico - 2017/02/07*)

"Alcohol – if it's not respected and managed – it takes Marines into a bad place, whether it's domestic abuse, sexual assault, suicide, hazing, DUI, or just general jackassery. Normally the story starts ... 'Well, we were drinking tequila, you know,' and the story kind of goes downhill from there," explained Commandant Gen. Robert Neller during an interview on the list of the Marines' 25 top tasks for 2017. (*Maritime Times – 2017/02/07*)

"We strongly support NATO. We only ask that all of the NATO members make their full and proper financial contributions to the NATO alliance, which many of them have not been doing. Many of them have not been even close," said Donald Trump to the organization's secretary. (*The Hill – 2017/02/06*)

"If you can't talk, you can't fight," explained Lt. Col. Josh Koslov while talking about the modified C-130 Hercules and the broad array of systems to jam enemy communications and radar used against ISIS. (*Air Force Times – 2017/02/06*)

"As noisy as hell," is the qualification Rear Admiral Chris Parry used talking about the British new Type 45 destroyers before adding that *"during the Cold War, I would say the ships I was in were the equivalent of a whisper. These ships now are the equivalent of shouting at somebody"*. (*Sputnik and The Sunday Times – 2017/02/06*)

14,535km: Such is the distance flown by the world's longest flight performed by Qatar Airways landing in Auckland. (*AFP - 2017/02/06*)

8,000: Such is the number of jobs that the Mexican aerospace sector has generated in 2016. (*Infodefensa.com – 2017/02/01*)

>100: Lockheed Martin finally managed to down the F-35 price under \$100mn. (*Les Echos – 2017/02/06*)

500: Such is the number of ships the Chinese People's Liberation Army (Navy) ambitions to have in its fleet. (*RUSI Defense – 2017/02/03*)

can become a \$10 billion company, our size would be similar to Embraer. The aim is to become one of the 10 big players in the world.”

- ▶ **TANZANIA:** 748 Air Services, an air charter service provider, has selected SKYTRAC full-service Flight Data Monitoring (FDM) for their Q400 aircraft. “748 Air Services required a solution that was both EASA-compliant and easy-to-use for a small, dynamic team. We are delivering a turnkey system with a custom event-set, seamless systems integration, and reliable, timely reporting access,” said SKYTRAC VP of Sales Jan van der Heul.
- ▶ **NAMIBIA:** Air Namibia and Turkish Airlines signed a codeshare agreement to be effective from March, 1st.
- ▶ **GREECE:** Air Mediterranean will start services to the Middle East after receiving its approved Hellenic EASA EU-Ops Air Operator’s Certificate.
- ▶ **GERMANY:** Thomas Winklemann entered into office on Feb. 3rd as the new CEO of Airberlin. He was appointed on Dec. 18, 2016.
- ▶ **GERMANY:** Lufthansa received its 1st A350 in Dec. 2016 and is now set to receive 6 more aircraft of the type this year. The 2nd A350 should be delivered later this month, and the 3rd in March. Lufthansa has orders for 25 A350.
- ▶ **GERMANY:** Friedrichshafen is hosting the AERO 2017 for the 25th anniversary of the trade show and is about to break booking records. AERO 2017 will be held from May 5 to 8 and will have 660 exhibitors.
- ▶ **IRELAND:** Ryanair third-quarter profits fall by 8% y/y and the company reported €95mn net profits. However, the airline said their forecast for full-year net profits will not be changed and will stay at €1.3-1.35bn.
- ▶ **IRELAND:** The Irish Aviation Authority made a successful experiment to show that one air traffic controller could manage traffic simultaneously at 2 low-capacity airports thanks to remote tower technologies.
- ▶ **FRANCE:** Air France formally swaps remaining 2 A380s for 3 A350s. The Air France commitment for A350s has now reached 21 aircraft.
- ▶ **FRANCE:** The low cost company Boost that will be launched by Air France in Sept. will add 2 routes going to Agadir and Marrakech to the 15 routes planned in France and Europe. Meanwhile, Air France pilots will pronounce themselves on the Boost project in a referendum organized by the SNPL union.
- ▶ **EUROPE:** EU plans to harmonize the rules for civil drones this year for implementation in 2019. The EU Council and the European Parliament will start discussions in Feb. They may create an airspace called “U-space” that will allow drones to fly below 500ft over cities.
- ▶ **EUROPE:** The European Commission proposed to extend the exemption of flights coming in and out of the EU from its carbon credit scheme. If the proposal is not adopted by April 2018, Airlines Company will start to pay into the EU’s Emissions Trading System (ETS).
- ▶ **EUROPE:** Marwan Lahoud, Airbus strategy chief will leave the group at the end of Feb. His successor is not yet known and Mr. Lahoud did not say where he will go next.

BUSINESS AVIATION

- ▶ **CANADA:** Ottawa announced a repayable loan of \$282mn over 4 years to Bombardier for jet programs. The company had engaged talks with the government for \$1bn in cash injection in 2015. Brazilian trade officials, with the support of Embraer, filed a WTO case against the Canadian company over alleged subsidies following this announcement.
- ▶ **CANADA:** ZenithJet launched a comprehensive acquisition program for Bombardier Globals according to AINonline. “We have exceptional knowledge and experience with Globals, and we wish to focus on this segment of the market,” said George Tsopeis president of ZenithJet.
- ▶ **USA:** JetNet released its Dec. 2016 and 2016 year-end results and reported 8,278 full retail sale transactions for this year compared to 8,900 in 2015. Business jets alone almost reached 2,500 transactions.
- ▶ **USA:** JetNet reported that pre-owned business jets, in the 4Q inventories fell by 1.95% q/q and prices rose by 5.07%. Turboprop inventories also declined q/q by 2.98%.
- ▶ **USA:** Jet Support Services is collaborating with Constant Aviation to work on automatic dependent surveillance broadcast (ADS-B) and future air navigation system (Fans)-1/A upgrades for its clients.
- ▶ **USA:** Argus International reported that business aircraft flight activity in North America was starting well thanks to a 2% increase y/y in Jan. However, Feb. might be less of a good month y/y.
- ▶ **USA:** Constant Aviation released a short video on last month inspection for the Embraer Legacy 144. Fourteen inspections have been completed.
- ▶ **USA:** AINonline reported that Gulfstream will have a busy year in terms of customer-support events with 9 forums, 2 advisory board meetings and a virtual operators conference. Events already started with the 1st one held on Jan. 18.
- ▶ **ARGENTINA:** Embraer is entering the Argentinian market with 2 Phenom 100s that started operations recently. “We are thrilled with the initial operations of the Phenom 100 jets in Argentina, a market that is showing signs of recovery,” said Gustavo Fonseca, Executive Jets’s VP of sales in Latin America.
- ▶ **UAE:** AMAC Aerospace signed a deal with Sky Prime for the maintenance of its Airbus A340 aircraft. Modifications will be completed in the 2nd quarter of 2017 and include cabin re-configuration and refurbishment as well as the installation of a KA-Band system to enable broadband class data connectivity.
- ▶ **LUXEMBOURG:** TAG Aviation will perform its 4th C-check inspection on a Falcon 7X aircraft. The 1st C-check project of the company on this aircraft type was completed last summer.
- ▶ **LUXEMBOURG:** Luxaviation Group launched a global VIP helicopter management company that will work for private and business clients. They hope Luxaviation Helicopters will become one of the top VIP

helicopter operators in Europe. Charlotte Pedersen, former COO of Luxaviation Group will be the CEO of the new company.

- ▶ UK: Global Jet Capital forecasted a total 959 aircraft deliveries of mid-to-heavy business jets in Europe by 2025, of which 146 will be from UK. These latest are valued at £5.7bn.
- ▶ WORLD: Zion Market Research published a report on “Business Jet Market: Global Industry Analysis, Size, Share, Growth, Trends, and Forecasts 2016-2024” and explains that a growing demand for flexible air travel schedules and for air taxi services boosted the market.

MILITARY AVIATION

- ▶ CANADA: Magellan Aerospace was awarded a contract for engine repair and overhaul and fleet management services on the F404 engine of the CF-188 Hornet aircraft Canadian fleet. Work will be carried out from 2017 through March, 2021.
- ▶ USA: Lockheed Martin was awarded an \$8.2bn contract by the US government for 90 F-35 jets, saving \$728m. This would be the 10th batch in a \$379bn program.
- ▶ USA: Lockheed Martin was awarded a \$17.2mn contract by the USAF to provide repair and technical support services for C-5 military airlift planes. The contract is running until Jan. 31, 2018.
- ▶ USA: Lockheed Martin was awarded a \$345.5mn Missile Defense Agency contract modification for the development of services for THAAD system elements.
- ▶ USA: The USAF 33rd Fighter Wing fired the 1st AIM-120 AMRAAM from an operational F-35A Lightning II fighter aircraft. The air-to-air missile was fired as part of a weapons system evaluation in Florida.
- ▶ USA: Raytheon was awarded a \$202mn foreign military sales contract to provide engineering services for the Patriot weapon system. Countries set to receive the support are Germany, Israel, South Korea, Japan, Saudi Arabia, Kuwait, Qatar, Spain, Taiwan and the Netherlands.
- ▶ USA: The USAF announced that they are getting close to making a decision on whether to buy new engines for the B-52 bombers. “I think we’re farther along than we’ve ever been in any other re-engine effort. I believe it shows a positive business case,” said James Noetzel, deputy chief of the B-52 weapon system team.
- ▶ USA: Leonardo announced that it will eventually participate to the T-X trainer bid alone after splitting with Raytheon. They will offer the T-100 integrated training system.
- ▶ ARGENTINA: The Minister of Defense, Julio Martinez, announced that the government decided to suspend the purchase of a new fighter aircraft to replace Lockheed Martin A-4AR Fightinghawks that should be retired before 2018.
- ▶ CHINA: Russia will deliver a second batch of 10 Su-35 to China this year. Four were already delivered in Dec. 2016, and the final 10 should arrive in China in 2018.
- ▶ CHINA: China can now sell its new UAV-capable AR-2 SAL missile to foreign customers after the China Academy of Aerospace Aerodynamics recently conducted live-fire tests of the AR-2 in northwest China.
- ▶ TAIWAN: Taiwan plans to build 66 jet trainer aircraft to bolster defenses against China. The program is dubbed XT-5 and should be developed by the National Chung-Shan Institute of Science and Technology (NCSIST), Taiwan’s main weapons development institute. The maiden flights are expected by 2020 and the 66 aircraft will be delivered by 2026. The investment should be of \$2.19bn.
- ▶ INDIA: Nik Khanna has been named as Managing Director for India operations at BAE Systems. He was previously working for Raytheon.
- ▶ INDIA: Thales named Emmanuel de Roquefeuil as the new VP and country director for India. He’s succeeding to Antoine Caput.
- ▶ INDIA: Saab will be competing to supply the Gripen M (Maritime) version of the Sea Gripen for the Indian Navy after it sent out a RFI last month.
- ▶ PAKISTAN: Asianmilitaryreview.com reported that the first flight of a dual-seat JF-17B is expected by the end of the second quarter of 2017. Pakistan is also expected to formally order 50 JF-17 Block-IIIIs from the Pakistan Aeronautical Complex in the 1st half of this year.
- ▶ SAUDI ARABIA: Boeing was awarded an \$18.2mn foreign military sales contract to provide the Royal Saudi Air Force with advanced radars for the F-15SA Eagle aircraft. Work is expected to be complete by the end of March, 2017.
- ▶ ANGOLA: Belarus’ 558th Aircraft Repair Plant overhauled the 1st Su-30K destined to be delivered to Angola along with 11 other aircraft. The 12 Su-30K are former Indian Air Force’s aircraft.
- ▶ SWEDEN: The Swedish Defense Material Administration (FMV) awarded a 3-year contract extension to GKN Aerospace to support Gripen RM12 engines. The deal is valued at \$175mn and includes technical product support, maintenance and part supply.
- ▶ BELARUS: Igor Lotenkov, Belarusian Deputy Minister of Defense, said that his country will order Su-30SM this year for its Armed Forces and Air Force.
- ▶ SERBIA: According to Serbia’s Tanjung news agency, Russia will transfer 6 MiG-29s to the country by the end of April.
- ▶ GERMANY: Diehl Defense Holding and Diehl BGT Defense have merged into one venture led by Clause Gunther, the current president of Diehl Defense.
- ▶ FRANCE: Jane’s reported that the French defense procurement agency, DGA, awarded a contract to Thales and RUAG Defense France for the

CERBERE live training program which aims at modernizing the tactical engagement simulation systems.

...MEANWHILE...

HIGH-VALUE TARGETS

Chief Petty Officer William Ryan Owens was killed in a raid in Yemen last week and joined the list of US troops killed in action. This list has been reduced over the years from 500 service members killed in 2010 to 18 since the beginning of 2016. But if the list of casualties has indeed decreased in quantity, it actually increased in terms of quality. Among the 18 killed, 12 were elite trainers and commandos from special operations troops, representing 2/3rd of the casualties while special ops represent only 5% of the military. This highlights a problem stemming from the fact that the US relies more and more on special ops in fighting terrorism abroad: the loss of US most experienced, trained, decorated and valuable warriors over a new counterterrorism model said to be much more efficient but which also appears to be much more dangerous for elite forces. (NY Times)

E-SPIRIT OF ST. LOUIS

All-electric airplanes are becoming reality. Graduate students have performed a test-run of the E-Spirit of St. Louis, an all-electric 2-seater from the Embry-Riddle Aeronautical University which is also working on a 9-passenger hybrid turboprop aircraft. The E-Spirit of St. Louis, a modified Diamond HK36, has a 150hp Yasa liquid cooled automotive electric engine. It is designed for an endurance of 1h45min using Lithium ion battery packs and custom-designed cooling systems. Its 1st flight is scheduled in May, at the same time of the 90th anniversary of Charles Lindbergh's solo flight across the Atlantic Ocean. (Aviation Week)

RUSTY HELOS

The NH 90 helicopter is of good quality except for one thing... salt! The aircraft is not a fan of salt and gets easily rusty, which is kind of a big problem when it comes to a helicopter used by the French Marine for sea rescue missions and anti-submarine warfare. More than 1 aircraft out of 2 have been grounded for technical reasons. French politicians are driven crazy when they think about such an advanced helicopter, with so many new technologies and capacities, being stopped by something as basic as rust. Patricia Adam, the president of the Commission of Defense of the parliament said that "Jean-Yves Le Drian is eagerly waiting for the manufacturer to offer a solution," to treat or change the defective parts. The program is supposed to provide helicopters to the French Army for the next 40 years. (Le Telegramme)

- ▶ FRANCE: French consortium between Airbus and Engie-Ineo was awarded the DESCARTES STCA contract by the DGA for a communication network for French military air operations. The contract includes design, manufacturing and support and has been signed for 8 years.

HELICOPTERS

- ▶ USA: Uber has hired a former Nasa engineer to foster its research capacity on flying cars. After more than 30 years at the US space agency, Mark Moore is joining Uber's Elevate division as its director of engineering for aviation. The ride-hailing company first signaled its interest in short-range "vertical takeoff and landing" (VTOL) technology in October, when it published a white paper discussing the potential for "on-demand aviation" to transform the daily commute. Mr Moore's research has explored how advances in robotics, autonomous systems and electric propulsion can facilitate new kinds of small aircraft. "Uber continues to see its role as a catalyst to the growing developing VTOL ecosystem. We're excited to have Mark join us to work with companies and stakeholders as we continue to explore the use case described in our white paper," said Nikhil Goel, Uber's head of product for advanced programs.
- ▶ USA: According to Inside Defense, Sikorsky will build five test HH-60W combat rescue helicopters for the Air Force after the service approved a \$203mn contract option to the \$1.2bn engineering, manufacturing and development contract that was awarded in June 2014, the company announced this week. The system demonstration test articles will be built starting in 2018 for delivery in 2019 and 2020, Sikorsky said in a Jan. 31 release. Four helicopters will be assembled under the EMD contract this year as well, and delivered in 2018.
- ▶ USA: The Navy is planning for the CH-53K heavy-lift helicopter program to receive a low-rate initial production decision in March after resolving design issues flagged by the Pentagon's top weapons tester, according to the program office. Naval Air Systems Command has been able to fix issues flagged by the director of operational test and evaluation's fiscal year 2016 report, according to NAVAIR spokeswoman Kelly Burdick. Specifically, the report cautioned that the CH-53K design "is not finalized" due to problems with the number two engine, including high temperatures in the engine bay and engine flame outs. "The [No. 2] engine issues have been resolved and we are tracking for MS C review end of March," Burdick wrote in a Feb. 2 email according to Inside the Navy, using shorthand for "milestone C," the point at which Defense Department leaders decide to transition a weapons program from development to initial production.
- ▶ USA: Bell Helicopter Textron has won a \$423.4mn contract for the manufacture of 25 AH-1Z Viper helicopters for the U.S. Marine Corps, the Defense Department said on Feb. 8. Work will be done in Fort Worth and Amarillo and is expected to be completed in February 2020.

- ▶ USA: AINonline reported that Bell's next-gen tiltrotor, the V-280 Valor, is 93% complete and should be flight-tested around Sept. 2017. It is designed to the DoD's Future Vertical Lift program. The aircraft can fit 14 passengers and 4 crew and its wing is fixed to the fuselage, its engines are mounted in the nacelles and remain fixed. The V-280 maximum speed is of 280 knots and it can reach more than 12,000 pounds of useful load.
- ▶ USA: Bell Helicopter is gearing up for the 505 Jet Ranger X's entry into service after it received type certification from Transport Canada in Dec. The FAA and EASA approval is expected very soon. Bell hopes they will produce 150-200 505s aircraft every year. The aircraft has a maximum cruise speed of 126kt and a maximum gross weight of 1,669kg. Bell already has 400 LOI for the 505.
- ▶ USA: AINonline reported that Airbus Helicopters claimed top prize for 2016 deliveries of turbine helicopters into the civil and parapublic markets in North America, delivering 60 new helicopters—50% of all deliveries in this region. It also took orders for 64 more helicopters in North America last year, an estimated 73% of new bookings in this market, according to the company. The company received orders from 20 new Airbus Helicopters customers in the region last year, including five new helicopter owners.
- ▶ AUSTRALIA: The Royal Australian Navy awarded Scheibel a contract for the supply of its Camcopter S-100 system and three years of follow-on contractor logistics support. The Royal Australian Navy released an international Request for Tender (RfT) in late February 2016, for unmanned aircraft system (UAS) capability. After thorough proposal evaluation and completing negotiations, the contract was signed at the end of December 2016.
- ▶ AUSTRALIA: The Navy wants to establish a full UAV squadron and will operate 2 unmanned flights at sea by the end of 2017. According to Flight International, Cdre Chris Smallhorn said that a maritime UAV can be teamed with NH Industries NH90 or Sikorsky MH-60R.
- ▶ SOUTH KOREA: Leonardo Helicopters is hopeful of a repeat order of the company's AW159 twin engine platform in a widely anticipated contest for Seoul's 12-airframe maritime helicopter requirement given commonality to aircraft in service with the Republic of Korea Navy (RoKN), the company has told Jane's. Citing sources from the country's Defense Acquisition Program Administration (DAPA), South Korean news agency Yonhap reported in January 2016 that the government has allocated a sum of KRW900bn (\$784mn) to acquire 12 more new helicopters for the RoKN's future anti-submarine and anti-surface warfare needs.
- ▶ SOUTH KOREA: The indigenous KUH-1 Surion helicopter supplied by KAI is grounded again because of defective parts according to Business Korea Daily News. The Defense Acquisition program Administration said that "after testing Surion 14 in the Army Aviation School on Jan. 16, we found that the helicopter had a crack which is 7 centimeters long at connecting parts on the main rotor."
- ▶ INDONESIA: Indonesian Air Force Chief of Staff, Air Chief Marshal Hadi Tjahjanto, revealed that he was in the process of investigating the purchase of the AgustaWestland (AW-101) VVIP helicopter. The investigation team is said to be currently preparing documents related to the procurement plan for the purchase of the helicopter, which was manufactured in the UK and Italy, Tjahjanto noted on Feb. 8. "*We are preparing supporting documents, and reports containing details of the planning process until it is currently here will be submitted to the TNI commander,*" he remarked.
- ▶ INDIA: Airbus Helicopters is looking to open a maintenance, repair, and overhaul (MRO) facility for H225M helicopters in Goa, Jane's has been told. The helicopter has been selected for the Indian Coast Guard's requirement for 14 Twin Engine Heavy Helicopters that would undertake search-and-rescue (SAR) and surveillance operations for the coastguard, in a requirement that was first announced in 2010.
- ▶ INDIA: By 2020, the Indian Air Force will have begun induction of 5 new rotorcraft types according to Flight International: the indigenous HAL Light Combat Helicopter (LCH) and 187 Light Utility Helicopter (LUH) which made its maiden flight in Sept., 200 Russian Ka-226T (140 produced under license by HAL), 22 Boeing AH-64 E Apache attack helicopters, and 15 CH-47 F (I) Chinook heavy lifters, the latest are the 1st American rotorcraft received in 70 years and will be delivered in 2019. Over the next 10 years, 500 new rotorcraft will be added to the Air Force's fleet.
- ▶ ISRAEL: Flying Production unveiled new UAVs and explained that the Thor system has fully autonomous flight modes and a very low signature. The maximum take-off weight is 12.5kg and the UAV can fly up to 12,000ft. It can fly for 75min and operate in a range of 5.4nm with a maximum speed of 35kt. The Nox is smaller and has a maximum take-off weight of 5kg and an endurance of 55min.
- ▶ EGYPT: Russian Helicopters will soon deliver the 1st Ka-52 Alligator attack helicopters to Egypt in 2017. Russian Helicopter sold 46 Ka-52Ks to Egypt in Dec. 2015.
- ▶ TUNISIA: According to Janes, Tunisia has begun receiving the surplus-US Army Bell OH-58D Kiowa Warrior scout and light attack helicopters it ordered in 2016, the AFP reported on Feb 4. Six of the 24 helicopters approved by the US government in May 2016 have now arrived in the North African country for counter-terrorism operations, with the remaining 18 scheduled to be delivered by the end of March.
- ▶ ALGERIA: A 2nd batch of Mi-26T2 will be delivered to the Algerian Air Force soon after transiting Italy. The Algerian Air Force has 14 Mi-26T2 on order and deliveries should be complete in 2017.
- ▶ RUSSIA: According to Spuntik, the new Mi-8AMTSh-VA arctic helicopter boasts absolutely unique technical characteristics and will make it an attractive purchase for foreign buyers. Sputnik spoke with a representative of the company who provide commentary on the forthcoming helicopter. The Mi-8AMTSh-VA twin-engine helicopter is specially designed to perform missions for the Russian Armed Forces in Arctic environmental conditions. It is based on the Mi-8AMTSh-V

military transport helicopter, a modernized variant of Mi-8AMTSh helicopter. Powered by two Klimov VK-2500-03 turbo-shaft engines and an enhanced drivetrain, the Mi-8AMTSh-VA also features a TA-14 auxiliary power unit with improved thrust to provide enough power to the onboard heating systems.

- ▶ NORWAY: Last week, the oil industry journal Energy Voice wrote about a potential new helicopter operator on the North Sea – Vici Helicopters. Incorporated on 18th January with an address in Stavanger, the company is reportedly going to operate 2 AgustaWestland AW189s, although it is still in the process of obtaining the necessary operating licenses.
- ▶ ITALY: The AW609 TiltRotor program is said to start icing trials in Marquette, Michigan, soon after successful ground and flight testing. FAA certification remains planned for 2018.
- ▶ ITALY: The Italian Army's aviation wants to rationalize its fleet from 9 helicopter and fixed-wing aircraft types to 4. Operations usually done with Boeing CH-47C will be transferred to the 16 new F-model Chinooks and the NH90 fleet will replace the aging Bell 205s and Bell 212/412s by 2021. Flight International also reported that from 2033-2035, Leonardo's new 8t-class attack helicopter will replace the AgustaWestland AW129D Mangusta, which will undergo several upgrades to be qualified to fly from the navy's aircraft carrier, the Garibaldi, and to fly at night.
- ▶ UK: US firm Boeing says its plans for a new UK base will not threaten jobs at Leonardo Helicopters in Yeovil, despite concerns by Lord Ashdown and others. The government recently gave Boeing the permission to build a new factory in Boscombe Down, creating 1,000 jobs. Boeing spokesman Nick Whitney said: "*It is not our intention to move any work to Boscombe Down that is currently carried out in Yeovil.*" Concerns remain after Boeing won a contract to build 50 Apaches last year.

NAVAL SYSTEMS

- ▶ CANADA: Fincantieri wants Ottawa to delay bidding on \$26-bn Canadian Surface Combatant project because it's too poorly structured it had doubts whether it would bid.
- ▶ USA: The U.S. Navy accepted delivery of the future USS Rafael Peralta (DDG 115) during a ceremony on Feb. 3
- ▶ USA: Bath Iron Works laid the keel for the third and final destroyer of the DDG-1000 class.
- ▶ USA: The USS America (LH6) completes the final phase of combat systems ship qualifications trials (CSSQT) and follow-on operation testing of the ship's weapons systems.
- ▶ USA: Austal has completed the USNS Yuma's acceptance trials conducted by the Navy's Board of Inspection and Survey.

- ▶ AUSTRALIA: Damen Shipyards Group looks for industrial partners for the Australian OPV Competition dubbed SEA 1180 OPV Program. The shipyard has organized 2 Industry Briefings in order to present its aim.
- ▶ AUSTRALIA: Italian FREMM-class frigate, ITS Fincantieri is currently in Australia in order to support Fincantieri's offer for the SEA 5000 futures frigates program.
- ▶ RUSSIA: This year, the Admiralty Shipyard will build two more submarines Project 636.3 (Improved Kilo) for the fleet of the Pacific.
- ▶ NORWAY: The MoD has selected the German's offer from TKMS for its future submarines program. The decision involves a broad and long-term Navy-to-Navy cooperation encompassing submarines and other naval capabilities. The cooperation will include a purchase of submarines and cooperation on training, maintenance and lifetime management of the new submarine, which will be based on the 212-design already in service in Germany and Italy.
- ▶ UK: The MoD will invest \$4mn in the building of a new submarine training school at HMNB Clyde in Scotland.

LAND & GROUND-BASED SYSTEMS

- ▶ USA: The Army is nearing completion of an acquisition strategy to achieve a 360-degree threat detection capability for its future Integrated Air-and-Missile Defense system in replacement of the current Patriot system, according to a U.S. official. Both Lockheed and Raytheon have said they can work quickly to bring a solution.
- ▶ USA: U.S. Infantry Marines will soon receive ultralight off-road vehicles to provide rapid logistics support in the field. Pentagon is expected to deliver 144 Utility Task Vehicles to the regiment-level starting later this month -a mere six months from contract award. The all-terrain vehicle can carry up to four Marines or be converted to haul 1,500 pounds of supplies.
- ▶ USA: Software problems on the Northrop Grumman-manufactured Integrated Battle Command System are causing the Army's new air-and-missile defense battle command system program to fall behind schedule, a recent Pentagon report said according to Defense News. The system is a crucial part of the Army's future Integrated Air-and-Missile Defense System.
- ▶ AUSTRALIA: Minister for Defense Industry of Australia said that BAE Systems Australia and Sea Box International would compete to develop prototype 155mm ammunition load carriers. The combined value of the contracts is \$3.27mn.
- ▶ AUSTRALIA: BAE Systems Australia has signed a teaming agreement with Australian company Marand for LAND 400. BAE Systems and its partner Patria were recently confirmed as one of two tenders selected to take part in risk mitigation activity for the Phase 2 combat reconnaissance vehicle program. The team is offering the AMV35, with

plans to manufacture the vehicle. Under the new agreement, Marand will contribute cross-sector expertise gained on engineering solutions.

- ▶ THAILAND: According to pictures leaked, Thailand took delivery of Chinese-made air defense missile system KS-1SM. Thailand armed forces have received a battery of KS-1C including three to four launcher vehicles, according to Army Recognition.
- ▶ SINGAPORE: The Singapore Armed Forces (SAF) has completed a series of checks and maintenance tasks on the nine 8x8 Terrex infantry carrier vehicles (ICVs) previously detained by the Hong Kong authorities, the Singapore Army announced. The ICVs, which were detained on 23 November at Hong Kong, were released in January 2017 after an international incident.
- ▶ IRAN: MoD unveils a new version of its Fajr 5 MLRS (Multiple Launch Rocket System) using guided rocket. The previous version of the Fajr 5 was developed by Iran in 1990s.
- ▶ TURKEY: State-controlled missile-maker Roketsan is developing a long-range ground-to-ground missile and weapons system dubbed Bora, the country's procurement office has announced.
- ▶ UKRAINE: The Ukrainian Army will receive a new batch of Dozor-B armored vehicles from UkrOboronProm under an order announced on 2 February. Dozor-B is a 4x4 armored personnel carrier designed for special operations units, and is available in reconnaissance, medical, and command vehicle variants.
- ▶ POLAND: On 2nd February 2017, Polska Grupa Zbrojeniowa (PGZ) and MBDA signed a strategic partnership agreement. This agreement opens the way for future cooperation in the area of missiles systems. In addition, the agreement also envisages the transfer of modern missile technologies to companies within PGZ and integrating these companies into MBDA's global supply chain.
- ▶ ESTONIA/FINLAND: The Estonian MoD has decided to join its Finnish counterpart in a plan to acquire at least 12 South Korean-made K9 Thunder 155-mm howitzers. Under the plan, the howitzers will be delivered by 2021.
- ▶ FINLAND: Patria has developed an upgraded version of its XA series of 6x6 armored personnel carriers (APCs). The new variant - designated XA-220 - was developed with internal research and development funding. The new version features a new powerful diesel engine coupled to the original transmission, an upgraded electrical system, and other new systems as video displays, cameras...
- ▶ NORWAY: Defense Minister announced the decision to conduct the project for providing the Army with a Mobile Ground Based Air Defense System in a direct acquisition with Kongsberg. The deliveries are planned for 2018 to 2021.
- ▶ GERMANY: Heckler & Koch has unveiled a new modular rifle, the HK433, chambered in 5.56x45 mm. It will be proposed to the Bundeswehr as a replacement for the currently issued G36 rifle. This is

the fourth rifle family being offered by the manufacturer after the G36, HK416, and HK417 weapons.

- ▶ UK: XPI Simulation, a Thales company specialized in training and simulation solutions, passed the critical design review for 28 driver training simulators for the AJAX vehicle program led by the MoD. This is a key milestone of the program considering that manufacturing can now begin.
- ▶ FRANCE: Thales Optronics has developed the final version of its Antares situational awareness system that will be fitted to vehicles built under the French Scorpion program. It is a key system that will give the vehicles day and night 360° view and threat detection system using electro-optical cameras, a laser and screens for the vehicle.
- ▶ EUROPE: The European Defense Agency's (EDA's) Hybrid Manned Unmanned Platooning (Hy-MUP) research project has been completed, the agency said. The project's objectives were to prove the feasibility of the operation of unmanned ground systems in coordination with regular manned vehicles. The project was carried out by ECA Robotics and Thales Optronique SAS representing France, and Diehl BGT Defence and Rheinmetall Landsysteme for Germany.

SPACE

- ▶ USA: NanoRacks selected Boeing to provide the Passive Common Berthing Mechanism (PCBM) of the first commercial airlock module to the ISS, following a May 2016 Space Act Agreement with NASA. To be installed by 2019, the airlock will be used for external payloads as well as cube/small satellites deployment.
- ▶ USA: The NASA's Space Technology Mission Directorate (STMD) said on Feb. 2, it is seeking partnerships with U.S. companies focused on industry-developed space technologies through the Announcement of Collaborative Opportunity (ACO), which covers the following technology areas: small launch vehicle, reliable electronics, advanced communications, and in-space propulsion.
- ▶ USA: United Launch Alliance (ULA) is seeking voluntary departures to trim an estimated number of 400 jobs as it seeks to become more price-competitive. The company could reach 3,000 employees by the end of the year, down from 3,750 in 2015 and following the shedding of 350 positions in 2016.
- ▶ USA: SpaceX is still awaiting the FAA license determination to launch its Falcon 9 rocket in mid-February as planned, as part of the CRS-10 resupply mission to the ISS. In the meantime, a Government Accountability Office (GAO) study reportedly revealed problems with turbine blades on the firm's rockets causing an "unacceptable risk" and therefore impacting the schedule for future commercial crew launches.
- ▶ USA: On Feb. 7, Orbital ATK sued the Defense Advanced Research Projects Agency (DARPA) to prevent Space Systems Loral (SSL) from getting a \$15mn contract to build a prototype satellite-servicing

spacecraft as part the agency's Robotic Servicing of Geosynchronous Satellites (RSGS) mission.

- ▶ USA: On Feb. 3, observation satellite fleet operator Planet announced it was acquiring Terra Bella – the former Skybox Imaging – from Google for an undisclosed sum. The company said the SkySat constellation of 7 high resolution satellites is highly complementary to its medium-resolution 60-satellite fleet.
- ▶ USA: On Feb. 7, NASA's Space Launch System (SLS) was endorsed by the Commercial Spaceflight Federation (CSF), seeing "many potential benefits" in the program, although the industry group's own members are developing their own heavy-lift vehicles.
- ▶ USA: The Missile Defense Agency (MDA) and Raytheon test-fired a SM-3 Block IIA missile, intercepting a ballistic missile target into space. Developed in cooperation with Japan, the interceptor operates as part of the Aegis Ballistic Missile Defense system.

- ▶ USA: On Feb. 2, Boeing and the USAF signed an agreement to continue support of the existing constellation of GPS Block 2A and Block 2F satellites for the next 5 years. The value of the extension was not disclosed.
- ▶ INDIA: The ISRO is set to launch a record 104 earth-observation satellites at one go on Feb. 15 – including 88 from the U.S., 3 Indian, and the rest from Germany, Israel, Kazakhstan, the Netherlands, Switzerland and the UAE – aboard a Polar Satellite Launch Vehicle (PSLV-C37).
- ▶ RUSSIA: On Feb. 2 local authorities said that Orbita will start manufacturing parts for the Federation manned spacecraft in 2017. The company will supply electrical circuits to RKK Energia, main contractor for the program.



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