

What future for the European combat aircraft industry?

A Death foretold?

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Abstract

Production of the 3 new generation European combat aircraft Eurofighter, Gripen and Rafale lasting some more years, the fundamental question arises: what kind of combat aircraft¹ (manned or unmanned) will be required to guarantee Europe's future security? Focussing on production capability only, the design and development capabilities however erode, if there are no measures taken. Maintaining design and development capability of modern combat aircraft requires therefore continuous work in this technical and operational area on products and operational/technology demonstrators. The paper presents an evolution of the position paper [1] issued by the Air and Space Academy on June 30 2011 to the 26 EU member state ministries of defence, European authorities and industry leaders.

¹ For "combat aircraft", read "aerial combat system", onboard or not, which includes both combat aircraft and combat UAV and encompasses airframe, engine, equipments and weapons systems.

1 Air warfare scenarios without advanced combat aircraft are no longer feasible

In Europe, Defence budgets are shrinking. This fact sends out the wrong signal that European States are generally feeling safer and more comfortable in a world which is itself getting more and more uncertain.

Any projection as regards the next generation of combat air systems is necessarily based on anticipated future conflict scenarios. At present, asymmetric warfare dealing mainly with terrorist organisations and multinational interventions in failed states are in the spotlight. In many such cases, mission aircraft, light aircraft and UAVs are up to the job. However, as can be seen in the current crisis in Libya, even in asymmetric conflicts, sophisticated air combat forces are essential in order to identify targets, ensure strike accuracy, be efficient on mobile targets and avoid collateral damage.

In addition, growing economic competition, dwindling resources and the consequences of climate change might generate multi-polar conflicts between nations and continents going far beyond current conflict scenarios. This is another reason why Europe must take care to maintain an advanced combat aircraft industry.

Finally, diplomatic and economic pressures supported by the presence of military forces and, at the worst, armed conflicts involving mostly sophisticated air power are likely to emerge in out-of-area scenarios where resources are a key to Europe's economic and political survival.

2 Today, Europe runs the risk of losing its air power independence

A state nowadays relies for its independence on its capacity to project power, which itself depends on an advanced air combat force.

Since WWII, European nations have developed and produced several generations of highly competitive combat aircraft. Today three aircraft – Eurofighter, Gripen and Rafale – are currently produced, fulfilling European defence needs and securing industrial and strategic independence.

Of course, this industrial heritage should be optimised to propose a single successor to these three combat aircraft but, so far, no movement is yet visible to secure this crucial European strategic asset in the future.

At the same time, in addition to the USA which has already developed the F-22 and is developing the new JSF/F35 combat aircraft with the financial support of some European countries, emerging powers worldwide are now building up forces equipped with their own advanced systems such as high performance combat aircraft which are developed, procured and soon exported in considerable numbers all over the world.

In the coming decades, the introduction on the market of advanced 5th Generation combat aircraft such as the T-50 (Russia, India), J-20 (China), KFX (Korea, Indonesia) combined with in-flight refuelling capacity allowing for out-of-area interventions, will demonstrate these strategic ambitions.

Europe's strategic independence is therefore at stake, if no action is taken to secure independent air power capabilities.

3 A strong European Industrial Base is mandatory to Support Operations and Upgrades

Another factor of growing importance that must be taken into account is the efficient use of advanced systems in operations. Continuous and close industrial support is absolutely essential during air operations. Such support services are equally needed to maintain air capabilities through future upgrades. This twofold support comes mostly from the industry having produced the systems.

Growing difficulties investing in upgrades of European combat aircraft are a warning that the European air operations capacity is going to shrink.

Acquisition or even participation in a foreign development and production programme – an example is given with the F-35 Joint Strike Fighter JSF - will never be sufficient to maintain overall European airpower capability since key technologies and fundamental air power characteristics will remain exclusively with the leading partner, in the case of F-35 with the USA.

It is now clear that the JSF/F-35 process has significantly weakened the independent capacity of the European combat aircraft industry as a whole. It is urgent for Europe to react.

4 The Combat Aircraft Industry is a driving force for advanced technologies and qualified employment

It is not only European air power capabilities that are at stake: the European combat aircraft industry has become an important factor in employment and technology, enriching the civil aircraft sector as well as many other high technology industries, research institutions and universities.

And these capabilities are sustained by a large spectrum of supplier industries, with engine, electronic and weapons systems manufacturers in pride of place. All over Europe, some 120,000 highly qualified people are employed in the combat aircraft industry.

A complete industrial network is therefore under threat of being destroyed.

5 Fundamentals to secure the European Combat Aircraft Industry

It is common knowledge that maintaining these capabilities requires continuous work on concrete programmes involving the research for new technologies and related know-how in design, development and production.

It goes without saying that European manufacturers cannot maintain such capabilities on a purely national basis, given that no single government will commission for instance a new combat aircraft programme of its industry. The related investments are too high and the single national market is too small. We obviously must think on a European scale.

It is generally acknowledged, in Europe as well as in the USA that such combat aircraft capabilities can only be maintained through affordable demonstrator projects and new programs, initiated roughly every 15 and 30 years respectively, going well beyond existing European TDPs (Technology Demonstrator Programs). It must be remembered that demonstrator variants of today's European combat aircraft have flown for the first time some 25 years ago already.

If no decision is taken on a European level, the industrial capability to design and produce combat aircraft will rapidly be lost and could only be rebuilt by means of a tremendous effort lasting decades.

6 Actions required in order to secure Industrial European Combat Aircraft Capability

The Air and Space Academy strongly believes that, in order to avoid the future death of the independent European combat aircraft industry, the following solutions should be urgently implemented:

Any definition of a future European combat aircraft programme must stem from the expression of joint operational needs and clearly specify the required industrial capabilities; this approach must be reinforced by technical and operational simulations on a global scale.

Urgent actions must be taken in Europe in order to ensure the survival of the avionics

(radars, sensors, on-board systems) and weapons industries, the latter of which is currently losing the battle against its competitors. Major weapons programmes will secure the technology level but upgrade programmes are also essential to secure the survival of this industry.

Further consolidation of European industry is required in order to develop new technologies, demonstrators or capabilities. With this aim in mind, it is necessary to go beyond classical cooperation models, and investigate new forms of industrial organisation:

- creation of an industrial integrated structure for each programme
- or the creation of a European integrated company for the air combat industry.

Experience shows that any attempt at industrial consolidation remains artificial and is likely to fail if it is not based on a major programme.

The best way of putting together a successful multinational programme is to include a limited number of cooperating countries (2 or 3) in its launch, all of which should agree on their respective roles and be prepared to encourage other states to join in by providing attractive conditions.

A European operational demonstrator programme with 5th generation technology should be launched immediately, taking advantage of the various technology demonstrators already in development and being tested in Europe, thus bridging 15 years gap mentioned above. At the same time, in order to validate the new operational capabilities envisaged, it would be advisable to develop functional demonstrators.

Lastly, a comprehensive long-term investment plan must be set up, sponsored by industry and European as well as national institutions in order to secure Europe's future

capacity to design, develop, produce and operate a new generation of combat aircraft. The EDA project “Future Air System for Europe²” will present in autumn 2011 a comprehensive capability road-map enabling future developments.

7 Conclusion

To-day Europe can still rely on a strong aeronautical industrial base. Tomorrow Europe will be able to secure its future strategic air power independence only if actions are urgently decided and funded. This is the price to pay now if Europe is to maintain its place in the newly emerging multi-polar world.

References

- [1] Air and Space Academy., “What future for the European combat aircraft industry?”, 2011 (*also available in French, German, Italian and Spanish*)

² FAS4Europe Study: Future Air Systems for Europe

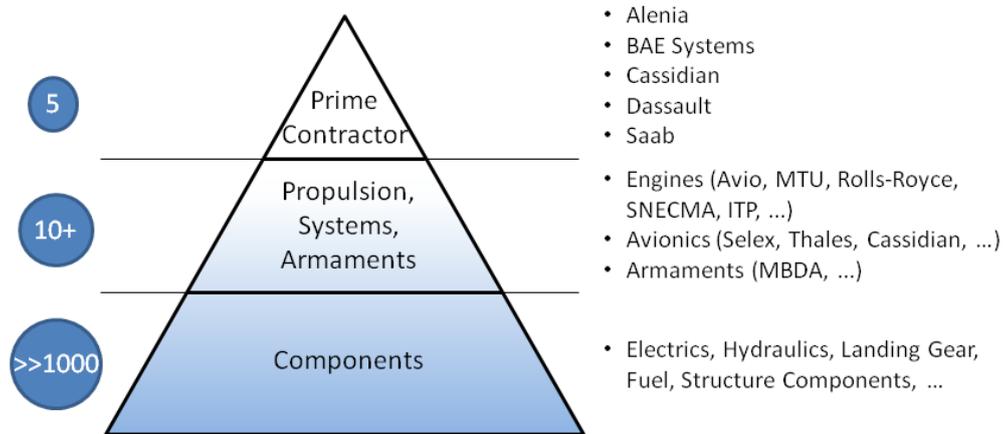


Fig 1. Industrial Network Combat Air Systems

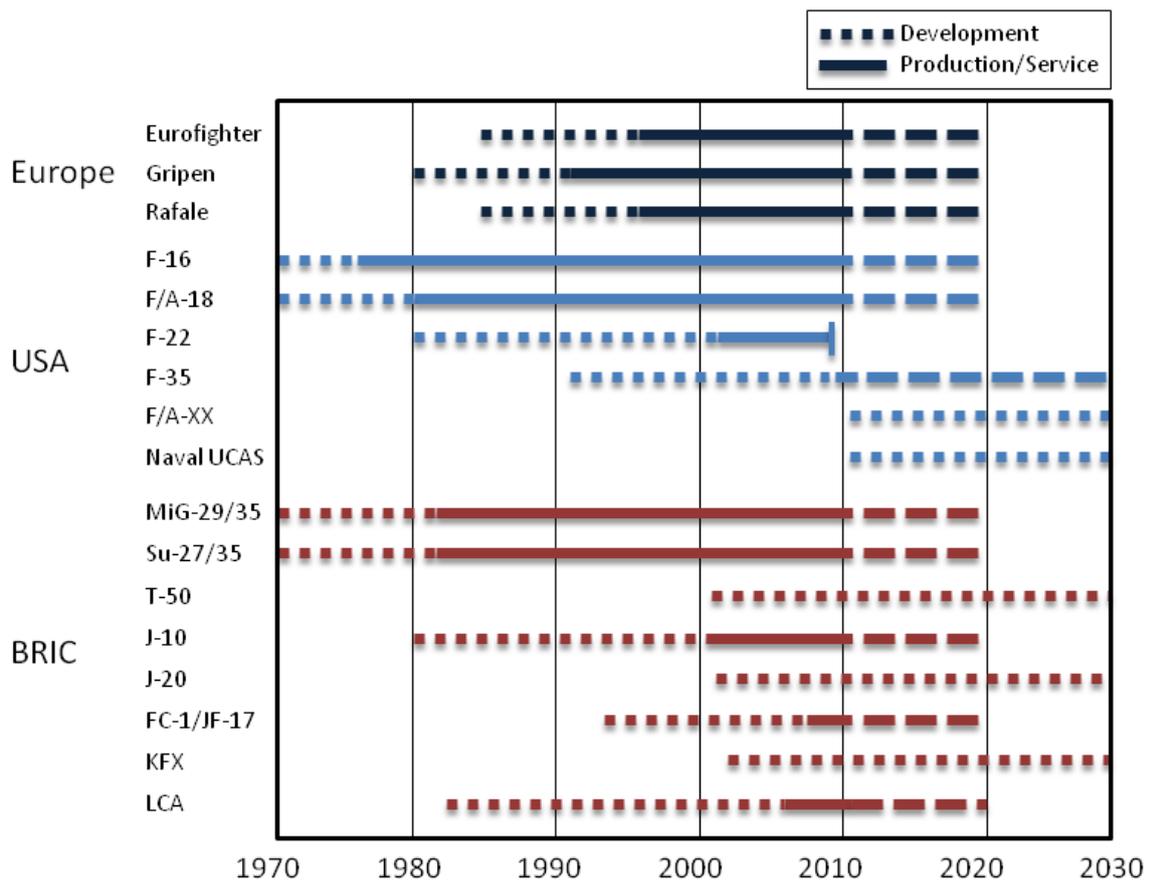


Fig 2. Combat Aircraft Generations, Development and Production