



A robust management system for
**Joint European
defence programmes**

The Opinions

ISBN 978-2-913331-67-9



ISSN 2426 3931

Opinion No. 7 - 2016

€ 10

A robust management system for

JOINT EUROPEAN DEFENCE PROGRAMMES

Opinion No.7 – 2016



Previous Opinions

Opinion No.1 on Aviation accidents, technical and legal responsibility

Opinion No.2 on the Proposed European regulation on investigation and prevention of accidents and incidents in civil aviation

Opinion No.3 on the European Regulation on aviation safety

Opinion No.4 on the Eruption of Eyjafjöll volcano in April 2010

Opinion No.5 on Combat Aviation

Opinion No.6 on the European Defence Agency

© Air and Space Academy, September 2016. All rights reserved.

Legal deposit October 2016

ACADÉMIE DE L'AIR ET DE L'ESPACE

Ancien Observatoire de Jolimont

1 avenue Camille Flammarion

31500 Toulouse – France

contact@academie-air-espace.com

Tel : +33 (0)5 34 25 03 80

www.air-space-academy.org

Printed by:

Equinox imprimerie – Z. I. de Gabor – 81370 Saint-Sulpice

ISBN 978-2-913331-67-9

ISSN 2426 3931

Photo credits:

FCAS/SCAF © Dassault Aviation – artist view

Aster © MBDA

TABLE OF CONTENTS

1. FOREWORD.....	4
2. INTRODUCTION	6
3. MANAGING THE INITIAL PHASES OF NEW DEFENCE PROGRAMMES	7
4. EFFICIENT, EFFECTIVE INDUSTRIAL ORGANISATION	9
5. SIMPLE INTELLECTUAL PROPERTY RULES.....	12
6. SMART MANAGEMENT OF EXPECTATIONS OF “ <i>JUSTE RETOUR</i> ”	13

1. FOREWORD

The Air and Space Academy (AAE), noting that development and production programmes for joint European defence systems are becoming increasingly rare – at a time when the budgetary constraints of European states should, on the contrary, actively encourage members to seek opportunities for cooperation in order to share the costs of new defence systems – attributes this reluctance to the unconvincing experiences of some major programmes which saw a significant escalation in both timelines and completion costs.

AAE considers that there is no inevitability about a cooperation programme encountering more problems during its development than one carried out in a national context, provided that strict management

rules are adopted, and respected, by participating states. These rules apply to programme management on a state level as well as on a level of the industrial prime contractor.

The professional experience gained by members of the Academy's Defence commission in the steering of joint European programmes in aeronautics and space led them to summarise these rules in this *Opinion* No.7, which was drawn up during the first half of 2016 before being formally adopted by AAE at its meeting of June 2016. In particular, the tricky question of the geographical return expected by States participating in a cooperation programme "à la carte" is discussed without taboos. Once again, AAE believes that inevitable demands

for geographical return can be managed intelligently, without hindering the smooth running of the programmes concerned, as long as clear rules are adopted early on for managing this return. It suggests that the European Defence Agency, as well as overseeing joint European programmes, should be charged with the specific task of monitoring geographical return in participating countries.

With the prospect of greater efforts on a European level to achieve joint defence

systems, and perhaps the preparation of a common strategy document on a European level that would complement the national “White Papers on defence and security” developed by major European states, it is useful to recall a few rules of good management for joint programmes.

Philippe Couillard

*President of the
Air and Space Academy*

2. INTRODUCTION

In the context of European collective efforts to modernise and improve the efficiency of its defence systems, concrete, realistic measures must be taken to guarantee rigorous and efficient management of European cooperative programmes. We should avoid unnecessary and costly duplication and at the same time be able to respond to the capability requirements of the European Union – considered as a political entity – by a rational utilisation of available financial means. The present situation is very disappointing, with less than 20 % of defence-related investments by the

EU member states devoted to European cooperation programmes.

There are three, closely interlinked, areas in which actions need to be taken to modify this situation:

- management of new programmes,
- industrial organisation for their implementation,
- adoption of new rules for the geographic return expected by the Participating States, in order to avoid the negative consequences on programmes of a narrow-minded application of such rules.

3. MANAGING THE INITIAL PHASES OF NEW DEFENCE PROGRAMMES

A major change of attitude on the part of EU member states and a reaffirming of the leading role that the European Defence Agency (EDA) should play is necessary if any significant progress is to take place in this area.

The EDA is already responsible for analysing the capability requirements of the European Union but has difficulty projecting itself into the future. The EDA should receive a clear mandate to propose the launch of key new defence systems. These programmes should be based on a thorough analysis of requirements, following close consultation with as many member states as possible. These programmes will be implemented as optional programmes by those member states that are willing to contribute.

Other programmes could be proposed by individual member states and submitted to the EDA for detailed analysis before being presented to the other member

states for their consideration and potential participation. In the event of a positive response, these programmes would become “European Union” programmes, comparable to programmes initiated by EDA, following the same rules of implementation.

Responsibility for programme management would lie with the EDA, assisted by a Programme Committee comprising representatives of the participating member states. This Programme Committee should be kept informed of the financial and technical progress of the programme. In cases of unforeseen difficulties, the Programme Committee would have authority to take any necessary action.

The European Defence Agency, having a limited staff, would be able to delegate some programme management tasks of certain programmes to OCCAR, as stipulated in the agreement signed between EDA and OCCAR. However, the

EDA would retain a supervisory role over the programme and be kept informed of its progress, particularly regarding the geographic distribution of contracts, where EDA should retain a specific responsibility (see next section).

In some cases, programme management responsibilities could be delegated to a member state. In particular, this would be appropriate when the programme was initially proposed by a member state ready to bear a large share of its funding. In such cases, the supervisory role of the EDA would remain unchanged.

A specific organisation must be established at a very early stage of a new cooperative programme in order to manage the various political, technical, financial and commercial aspects of potential future export markets. As many of these activities are the responsibility of governments, it would be wise to organise a distribution of tasks among the participating states, taking into account the special relations that some states enjoy in certain parts of the world. The EDA would remain the guardian of overall consistency between national, European and export programmes. In particular, the export licence regime of such defence systems should be organised in such a way as to avoid the multiplication of national procedures and enable one country to take decisions, on behalf of the participating states, based on clear rules.

This requires sufficient mutual confidence between the participating states. The industrial prime contractor must have full contract responsibility and must act in compliance with its national regulations. If a prime contractor has been identified and was responsible for the development phase, it should be able to play the same role in the production phase and for export contracts. In the case of more complex organisations, involving several industrial partners, one of them would need to play the role of lead partner for each export contract and would manage this contract according to the rules of its own country.

During the initial phase of preparation for a new defence system development programme, general principles relative to its future export potential could be agreed to by the participating states. The sale of the system to non-participating European states should not be restricted; but outside Europe, some states or groups of states might be designated, by common agreement of the participating states, as “off-limits” or may require a special export procedure involving prior consultation of participating states.

4. EFFICIENT, EFFECTIVE INDUSTRIAL ORGANISATION

The success of a cooperative programme requires an efficient industrial organisation that follows elementary management rules. One essential, non-negotiable principle is that programme management from the initial design studies is the responsibility of a prime contractor with recognised competencies and with all necessary decision powers. The prime contractor must not only provide contractual leadership and allocate the sub-contracts to the partner companies involved in the programme, but must also play the role of industrial architect and system integrator. In this capacity, the prime contractor is in charge of drawing up general specifications that meet the mission requirements as defined by the customer, putting together the interface specifications, and finally proposing a management plan, that includes risk management. The most satisfactory solution would be to select a single company, perhaps grouping together the

various industrial actors within a given sector, to act as prime contractor for the development, production and support phases through to exploitation. Such industrial groupings already exist, albeit partially, in certain sectors such as space, missiles and helicopters. In other major sectors, however, such as combat aircraft, UCAVs, surface naval ships, submarines or armoured vehicles, no such consolidation has yet taken place. No industrial grouping can take place against the will of the companies involved but the role of governments should be to encourage such groupings when they appear to be possible.

Since one cannot expect rapid change in this area, efficient alternative solutions will need to be set up whenever a new cooperative programme is decided. Three solutions can be envisaged:

- The setting up by the principal industrial partners involved in the programme

of a temporary *ad hoc* company to act as prime contractor, while still relying heavily on the partner companies. This solution may be acceptable in certain cases but is rather complex to implement and may not provide the degree of robustness, competency and authority that is required of a prime contractor.

- The selection among the principal industrial partners involved in the programme of a prime contractor to assume all contractual responsibilities and to act as industrial architect and system integrator. This solution is more challenging from a political viewpoint but could be acceptable if provisions were made for the secondment of experts from leading subcontractors to the prime contractor's project team. These experts could in particular work on interface specifications.
- If the selection of a single prime contractor is not deemed acceptable, two of the major industrial partners could form a joint venture which could act as prime contractor for the development phase. However, initial studies before the development phase (feasibility, risk analysis and mitigation, overall design and architectures) would have to be conducted within a joint design team working in a single central, physical location. For the development phase proper (detailed definition, manufacturing, integration and tests), the two industrial partners could share key

tasks: for example one partner taking responsibility for airframe and the other responsibility for software and system integration. In all cases, there should be a full exchange of knowledge and experience. In such a situation, it is essential that the distribution of activities between the industrial partners during the production phase and support to exploitation should be determined and clearly defined as early as possible after the programme launch in order to avoid disputes later on.

These solutions are not entirely optimal but, in the continuing absence of a legal regime for European corporations, it is necessary to impose a minimal solution of this type before the launch of any new cooperative programme in order to avoid significant problems in its execution.

In addition to the issue of prime contractorship, locating several final assembly lines in different countries is a source of significant added costs. This may be unavoidable in certain cases in order to reach an acceptable balance of industrial and financial contributions in the programme, but other solutions must first be explored with the aim of establishing a single assembly line, or at the very least to limit duplication.

The organisation of support activities associated with the systems once they are deployed is also a major challenge and is politically sensitive in coopera-

tive programmes. This support activity represents more than half of the lifetime costs of modern defence systems. The role of the industrial architect must be extended to the organisation and implementation of this support. This will be essential in order to maximise the returns – both intellectual and capital – for the participating states that have invested in the development and production phases of the programme. This is an area where much remains to be done

and where the potential efficiency gains can be very large. In each new cooperative programme, European solutions must be given priority whenever they are economically justified instead of having a multiplicity of national solutions. This of course assumes a high level of mutual confidence between the states which deploy these defence systems, a major political challenge indeed for the European Union.

5. SIMPLE INTELLECTUAL PROPERTY RULES

Concerning intellectual property rights, the following rules, currently applied by the European Defence Agency (EDA) for R & T research programmes, should be adopted for the development of future cooperative defence programmes:

- free access to upstream Intellectual Property Rights (IPRs) – the know-how needed to understand the technology involved in the new developments – without transfer of this technology to users,
- IPRs issuing from know-how resulting from new developments should be shared between the industrial partners within the programme.

6. SMART MANAGEMENT OF EXPECTATIONS OF “*JUSTE RETOUR*”

Even if certain defence strategic programmes could be funded out of the European Union budget in the future, it is clear that for the present most European cooperative programmes will be funded “*à la carte*”, by contributions from participating states. It would be very naïve to think that states will agree to such investments without expecting an economic return of the same magnitude to their economy. This geographic return, known as “*juste retour*”, or “just return”, is a necessary evil in order to be able to raise funding from potential participating states.

However, the present practice which tends to guarantee a geographic return to participating states in optional programmes on a programme by programme basis, sometimes even on a year by year basis, creates intolerable constraints, which in turn lead to significant additional costs, and is detrimental to the efficient execution of European cooperative programmes and to their image.

A new approach must therefore be adopted to reconcile these two apparently irreconcilable objectives: technical success of the programme within the allocated financial budget and delivery of anticipated geographic return to the participating states.

While reaffirming the general rule of maximising efficiency via a policy of open competition within European industry, it is indeed feasible to define a minimum degree of geographic return for each programme; for example, 80 % of the financial contribution of each participating state, instead of 100 %. The 100 % objective is not realistic and can only contribute to decisions that are incompatible with efficient programme management. Geographic return should also be considered over a period of several years, taking into account not one programme but a set of programmes to which a state contributes. Finally, support activities, which have consider-

able economic weight over the lifetime of a defence system, should also be taken into account. Industrial specialisation in support activities could potentially compensate residual imbalances in geographic returns within a given programme.

As demonstrated by the Airbus commercial aircraft programmes and other cooperative programmes, a key to the success of the management of geographic return is to set up “Centres of excellence” in certain participating countries, by which they earn recognition for their expertise from all actors while maintaining the objective of maximising economic efficiency.

In order to supervise this sensitive process, the European Defence Agency (EDA) should set up a team dedicated to monitoring geographic returns within each

optional cooperative defence programme and maintaining statistics displaying on a continuous basis the situation of each state. The EDA would then be in a position to suggest realistic measures to prime contractors aimed at correcting significant geographic return deficits in a participating state, either within the ongoing programme if it appears feasible to do so without affecting its schedule or its financial envelope, or by taking the opportunity of initiating a new programme. In the event of persisting significant deficits in the expected geographic return, the EDA Board should take up the issue and impose the corrective measures deemed necessary.

The set of measures described above should form the basic principles on which to manage a European cooperative defence programme funded through voluntary contributions of states.