

# Lessons Learned

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F-16 SAI Conference

# Inhoud

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## Executive summary

In June 1975, the Governments of Belgium, Denmark, Norway and The Netherlands entered into a Memorandum of Understanding (MOU) with the Government of the United States of America, specifying the planned co-production of the F-16 fighter aircraft. The arrangements were finalized in Letters of Offer and Acceptance, signed in May 1977 regarding the production of 998 F-16 multi-purpose lightweight fighter aircraft.

With the initial buy the US purchased 650, Belgium 116, Denmark 58, The Netherlands 102 aircraft and Norway 72. In the MOU an agreed not-to-exceed price of USD 6,091,000 per aircraft (price level January 1975) was stated.

The total number of aircraft produced pr February 1, 1997 amounts to 3,615. At the beginning of the program it was planned to produce 2,000 aircraft not included third country sales. 380 aircraft are still in order.

The EPGs agreed on the F-16 Mid-Life Update program in 1990. Under this program 309 of the EPG F-16 aircraft will be upgraded and equipped with new cockpits and avionics systems.

In June 1998 the accelerated case closure of the initial buy is to be expected. The closure of the follow-on-buys is expected before the end of this millennium, while the Mid-Life Update program is expected to be closed in the period 2002-2005. The current actual cost for the original buy (price level January 1975) as of June 30, 1996, is USD 5,819,000 per aircraft.

The Supreme Audit Institutions of Belgium, Denmark, The Netherlands and Norway and the General Accounting Office

(GAO) of United States of America have established a body called the F-16 SAI Conference. The members of the Conference meet annually. The SAI Conference is a cooperative body in which experiences regarding the F-16 programs are exchanged and a body where specific issues are audited jointly.

This lessons learned paper is a summary of the audit experiences gained during the multinational cooperation on the production and procurement of the F-16 aircraft. The lessons learned paper covers both the F-16 original buy (998-program), the follow-on buys and the F-16 MLU program up to date. However, the F-16 MLU program will continue into the 2000s and the SAIs' audit cooperation will continue for as long as the SAIs find it necessary and beneficial.

With this paper the SAIs hope to contribute to a more effective management and audit of possible future multinational procurement programs. The recommendations given in this lessons learned paper are given with regards to possible future multinational cooperative acquisition programs.

The experiences from the audits of the F-16 programs may be beneficial not only in relation to procurement of aircraft, but also regarding other acquisition programs. The experiences should also be considered in relation to FMS purchases in general, and the SAIs feel that the respective procurement agencies can benefit from these lessons learned.

The draft Lessons Learned Paper was sent to the GAO and the SC for comments. The received comments have been included in the report where appropriate.

The SC agrees with the intention that the Lessons Learned Report should be taken into consideration when entering into future multinational acquisition programs.

The conclusions and lessons learned from the audits of the F-16 programs are briefly described in the following:

*Lessons learned and recommendations which need attention now:*

- Down sizing of various management bodies  
As the original buy is almost finished and only the MLU program continues, it is the conclusion of the SAIs that the administrative bodies of the F-16 program management should be considered reduced after the closure of the original buy. In possible future cooperation programs a down sizing of different management bodies has to be considered currently.
- Applying a planned case closure procedure for the follow on buys and the Mid-Life Update is to be considered  
The initial F-16 contracts were signed in 1977 and will be closed in 1997 if all terms are respected. From the date of the delivery of the last aircraft (1984) to the closure of the contract a 13 year period has elapsed. In the SAIs opinion too long a period for several reasons, one of them being the difficulty to check the proper execution of the contract and to enable the SAIs to evaluate whether approved budgets have been exceeded. The case closure for follow-on-buys and the MLU buy should be organized in a way that makes it possible to close the different cases as soon as the deliveries are made.

*Lessons learned and recommendations for future programs*

- Flexible use of the rules and regulations  
The United States Government has been in charge of the management of the F-16 programs, and the decisions have consequently been subject to US interpretations of laws, regulations and agreements connected to the F-16 programs. The SAIs are of the opinion that a more flexible use of the rules and regulations of the programs would have been beneficial for the cooperation.

One problem regarding the use of US rules and regulations has been that the implementation of the rules and regulations have changed several times during the period of the programs. These changes may have an impact on the price to be paid by the EPGs for the aircraft. In this regard a

discussion is still going on about the question whether a logistic surcharge has to be paid by the EPGs to US Government.

Changes in the implementation of rules and regulations and lack of information have made it difficult for the European SAIs to audit these cooperative programs.

- Provisions for contract administration and definition of co-production

In future programs the provisions for contract administration should be reviewed by the MODs prior to signing of a MOU. Furthermore, different aspects of co-production should be reviewed on beforehand and an agreement on a common definition and understanding of co-production should be agreed upon. Sufficient legal advice should be provided before entering into a new MOU, in order to ensure an improved awareness of problems concerning the use of specific rules and regulations.

In cases of coproduction as of the F-16 parties come to long lasting agreements. The MOUs should therefore contain provisions to deal with changes of (the implementation of) rules and regulations of the pilot nation during the lasting of the agreements.

An agreement regarding sales and recoupments of common developed material sold to third countries, specially regarding the computing of the recoupments should be established on beforehand.

- Offset definition and accounting procedures

As a condition for participating in the F-16 aircraft programs, the EPGs required that a part of the production should be placed in Europe. The MOU commits the US to a minimum overall offset to the European Participating Countries (EPCs) of 58 percent of the initial EPG F-16 procurement. The MOU is specific with respect to the amount of combined offset between the US and the EPGs as a group, but there is no provision requiring the equalization of offset between the EPGs. No total offset accounting procedures were established from the beginning of the F-16 program, and the SAIs may therefore not confirm the accuracy of the total offset percentages. Furthermore, there is no clear and accepted definition on how to calculate

offset, which consequently increases the difficulties in calculating the offset percentage. According to figures presented to the SAIs the total offset per cent achieved regarding the initial buy is 58,8 for the EPG as a unit. However, the SAIs are not certain that the offset percentages presented represent the exact offset status. This is due to the lack of offset accounting procedures. Future co-production programs should specify, to the extent possible, the distribution of offset to each of the participating countries. Offset definition and accounting procedures also concerning non-economic issues should be established before entering into a contract/program, and a common and defined understanding on how to calculate the offset percentages must be established.

- Unlimited access to cost and pricing data for defense contract auditors and SAIs

Based on the original Technical Agreement (TA) No. 1 both the European defense contract auditors and the European SAIs were given unlimited access to cost and pricing data regarding the original buy. European auditors also participated in audits performed in the US.

In relation to the problems with the implementation of the revised TA No. 1 regarding the MLU program, it is the opinion of the SAIs that the audit GAO performed in 1996 on request of the four European SAIs showed that there is a significant need for access to information regarding the contract negotiations conducted by the USAF on behalf of the European Air Forces (EPAF).

The SAIs have consequently concluded that it has not been possible to get the required access to adequate information. It has therefore not been possible to audit the basis of the pricing of the MLU contracts or to review the contract negotiations concerning this significant purchase. The revision of TA No. 1 was implemented in order to safeguard the contract audit rights for the partners involved. From the European point of view however, the result has been a complete denial of access to original data or information following the possibility in US legislation concerning proprietary data.

In any future joint or cooperative program arrangement the principles and the main provisions of TA No. 1, especially the audit rights of the US auditors and their European counterparts should be included. The principles and provisions mentioned should also be a part of the prime contracts. The European MODs should provide sufficient legal advice before entering into any future joint or cooperative/multinational programs arrangement in order to prevent legal problems after signing of contract/contracts.

*Lessons learned to be applied also in future programs*

- Coordinated multinational audits

Coordinated multinational audits have in general been valuable and should be arranged whenever necessary, in order to prevent a duplication of work between the various levels of auditing bodies. Audit cooperation between the audit agencies of the MODs and the SAIs should also be considered in future programs.

- The level line principle and the not-to-exceed price

The level line pricing principle states that the EPGs shall pay the same price per aircraft for each of the 348 aircraft although the cost of the learning curve effect will not be the same for all aircraft. The level line pricing principle is in the SAIs opinion an important principle which makes it possible to level the price differences among the EPG countries and differences prior to the time of production. The level line pricing principle is important to agree upon also in connection with future programs so that price differences between the production lots appearing throughout a lengthy production period are leveled. The principle also means that the producing countries are to pay the same price per unit. This principle is rather fundamental in a co-production program of such a large scale.

The not-to-exceed price has been an important principle in relation to the SAIs' assignments in order to assess whether the approved budget has been exceeded. The very lengthy closing process of the original buy and the recently accepted accelerated case closure procedure makes it impossible,

within an acceptable time limit, to evaluate completely whether the approved budget has been exceeded. The not-to-exceed price principle is the main fixed amount which enables the SAIs to ensure that the amount spent is in compliance with the approved budget. The fact that the SAIs currently are reviewing the development of the not-to-exceed price has no doubt had an impact on the financial management and the efforts to meet the budgetary goals. The principle has worked very well and should be considered implemented also in future programs.

# I Introduction

## I.1 Description of the F-16 programs

In June 1975, the governments of Belgium, Denmark, The Netherlands and Norway (the European Participating Governments [EPGs]) entered into a Memorandum of Understanding with the Government of the United States of America (USG), specifying the planned co-production of the F-16 fighter aircraft. This memorandum provides for the acquisition of the aircraft as well as the spare-parts, maintenance, documentation and training of personnel. The first stage of this project was the development program phase.

The arrangements were finalized in Letters of Offer and Acceptance (LOAs), signed in May 1977 and concerned the production of 998 F-16 multi-purpose lightweight fighter aircraft. The mentioned agreements that have been agreed upon have been the basis of the F-16 program. However, the rules and regulations of the US program of Foreign Military Sales (FMS) seem to have been the general framework of the program.

With the initial buy the US purchased 650, Belgium 116, Denmark 58, Norway 72 and The Netherlands 102 aircraft. In the Memorandum of Understanding there was an agreed not-to-exceed price of USD 6,091,000 per aircraft (price level January 1975). The total number of aircraft produced pr. February 1, 97 aMOUnts to 3,615. At the beginning of the program it was planned to produce 2,000 aircraft exclusive third country sales. 380 aircraft is still in order.

The EPGs agreed on the F-16 Mid-Life Update program in 1990. Under this program 309 of the EPG F-16 aircraft will be upgraded and equipped with new cockpits and avionics systems. The financial figures for the MLU program is showed in enclosure 3.

The F-16 program is managed by the US, however; a Multinational Fighter Program Steering Committee (SC), composed of one member of each of the participating countries, has also been established. The SC is responsible for broad policy matters, advice and counsel to the United States Air Force (USAF). Subcommittees, such as the Contractual and Financial Subcommittee (C&F), have been established to monitor specific areas and to assist the SC.

At the end of December 1997 the case closure of the initial buy is to be expected. The closure of the follow-on-buy is expected before the end of this millennium, while the Mid-Life Update program is expected to be closed in the period 2002-2005.

## 1.2 The basis of the SAI cooperation

The Supreme Audit Institutions (SAIs) of Belgium, Denmark, The Netherlands and Norway and the United States of America have established a body called the F-16 SAI Conference. Although earlier contacts between the SAIs had been established, the first formal F-16 SAI Conference, consisting of these five SAIs took place in 1979. Since then the members of the Conference have met annually. The SAI Conference is a cooperative body which exchanges experiences of the individual SAIs regarding the F-16 programs and audit specific issues jointly. The Conference may form working groups to elaborate on specific topics. More recently the SAI Conference has requested the Office of the Inspector General of the Department of Defense (DOD-IG) and the General Accounting Office (GAO) to perform audits in order to form an opinion on specific areas of the programs.

The SAI Conference is a formal conference, but the European SAIs participate on a voluntary basis. The Conference does not have any official authority and can therefore not go beyond the competence of each of the cooperating SAIs. However, joint papers have always been written in full consensus among the SAIs. These papers can

be used as a base for possible reports to the national authorities and each SAI is free to amend the paper as it chooses. The constitutional position of each of the four European SAIs and their mandates are briefly described in the following chapter.

### 1.3 Legal foundation of the SAIs

#### *Belgium*

The organization and powers of the Court of Auditors are laid down in article 180 of the Constitution, as well as in its organizational law of October 29, 1846, modified by the law of April 3, 1995.

In Belgium, the Court of Auditors is an offshoot of the Parliament. The Court of Auditors performs an administrative, a jurisdictional and an informative task on behalf of the legislator.

The administrative tasks consist of monitoring all expenditures and revenues of the State, the Regions, the Communities, the Provinces as well as the public bodies that depend upon them.

In accordance with the principle of non-interference by the external audit authority in the management of the executive branch, the Court limits its interventions to those contracts which have been awarded.

The jurisdictional competence is exercised over the authorizing officers and accounting officers who are responsible for shortcomings and are summoned before the Court by the department concerned.

Finally the informational competence of the Court of Auditors lies in communicating to Parliament and other legislative assemblies its annual report of comments "Cahier d'observations" as well as comments about their budgets and their implementation.

### *Denmark*

Rigsrevisionen is an independent audit institution under the Folketing (the Danish parliament) and its prime objective is to audit the Government's accounts. Rigsrevisionen reports to the six members of the Folketing's Public Accounts Committee who have been appointed by the Folketing. Rigsrevisionen performs both financial and performance audit. The reports are addressed to the Folketing's Public Accounts Committee. The Committee makes the reports public and forward them to the Folketing with any possible comments.

### *The Netherlands*

The Dutch SAI, Algemene Rekenkamer, was given a legal basis in 1814 with the reinstatement of the House of Orange over the Netherlands. Its position has been formalized in the Budget and Accounting Act, lastly amended in 1995. The three members of the Board has been appointed by the Government for life.

The Rekenkamer has a very broad audit remit and the Constitution specifies that it is responsible for auditing state revenue and expenditure. At present time the objective is to contribute to the improvement of the functioning of government by means of audits, regularity as well as performance audits. The Rekenkamer reports to the Parliament whenever it wants to; consequently, the reports are public documents.

### *Norway*

The Norwegian SAI, Riksrevisjonen, finds its origin in the Constitution of 1814.

The position of Riksrevisjonen has been worked out in the Act on the Auditing of Governmental Accounts, originated in 1918 and amended in 1930 and 1972; the scope of the audit is further specified in several special instructions laid down by the Norwegian Parliament - the Storting.

Riksrevisjonen's prime objective is to audit state revenue and expenditure, and to perform both financial and performance audit. The reports are forwarded to the Storting. The reports are public documents after the Storting has received the reports.

#### 1.4 The purpose of this paper

The objective of this paper is to summarize the audit experiences gained during the international cooperation on the procurement of the F-16 aircraft in order to summarize and record the experiences. In this way the SAIs may contribute to a more effective way of the management of possible future multinational procurement programs. The experiences of the F-16 programs may be beneficial not only in relation to procurement of aircraft, but also regarding other acquisition programs. The experiences should also be considered in relation to FMS purchases in general, and the SAIs feel that the respective procuring bodies can benefit from these lessons learned.

#### 1.5 Comments from GAO, SC and USAF

The draft Lessons Learned Report was sent to the GAO and the SC for comments. In addition the USAF has also given comments to the report. The comments from GAO are considered in the text of the report.

The USAF stated in their comments that several of the issues raised in the lessons learned paper still are under discussion with the European partners. Therefore the comments given do not constitute formal USAF endorsement of the basic report or its recommendations. However, it is also stated that the USAF will continue to review its F-16 organizational structure to ensure it adequately reflects the proper manning for the remaining tasks under the F-16 program MOU. i.e. they mention that the USAF along with the European participants currently are evaluating the F-16 SC structure and dncn-Northern Europe and that streamlining of operations will be implemented when appropriate.

The major comments from the Steering Committee are that the Committee is of the opinion that a proper review of the way the program has been conducted so far should be based upon the MOU. The fact is that the document was accepted by all Governments and related agencies and has formed a

basis for the procurement and production of the aircraft, spares delivery, logistic support provisioning and training. Consequently, the SC states that the subjects that has to be analyzed are:

- does the aircraft perform as expected?
- are the cost and the delivery schedule as projected?
- have the industrial commitments been realized?
- did the management structure perform as planned?

The SC is of the opinion that the commitments imposed by the MOU have been met by all parties, in spite the fact that it has been necessary to work out compromises. The SC is also stressing that the lessons learned paper fails to deal with the positive character of the program with regards to the cost, delivery scale, industrial compensation and aircraft performance. The sc's overall conclusion is that the program is a military and economic success. Finally it is stressed that the fact that US has been the pilot nation in the program has given substantial advantages to all the countries.

Examining and concluding on the implementation of all the aspects of the MOU was not a part of the working out of the Lessons Learned Report. It is not the task of the European SAIs nor has it been the purpose to verify as to whether the F-16 programs have been a success militarily nor economically, as the purpose of the Lessons Learned Report as mentioned before is to gather experiences gained during the audit of the programs.

## 2 Multinational audit cooperation

### 2.1 The operational aspects of the SAI cooperation

In 1979 the F-16 SAI Conference was established as a result of the initiative of the Danish and Norwegian SAIs. It was agreed that an audit cooperation concerning the F-16 program would be both desirable and beneficial. In addition it was contemplated that within such a cooperation it would be obvious to implement an investigation to illuminate the activities that are implemented by the US authorities in connection with the F-16 program control and contract administration.

At the beginning the F-16 Conference as a body performed some audits on their own in the USA and the reports were based on their own findings. During the years 1979 and 1980 the SAIs reported on several issues, e.g.:

- US F-16 program management and contract administration;
- Loading issue
- Currency Clearing House (CCH)
- CASEUR (The Contract Administrative Service Europe)
- Procedures established in the Security Assistance Accounting Center/Air Force Accounting and Finance Center;
- Economic price adjustments (escalation)

In the latter part of the 80s and the following years the SAIs based their judgments on audit findings from the GAO and DOD-IG. Several times SAIs have asked GAO and the DOD-IG to perform audits regarding the F-16 programs. However, the SAIs can always, if they feel it is necessary, perform the audits themselves.

In recent years different US Defense bodies have participated at the F-16 SAI Conference in order to give briefings on different areas within the F-16 programs.

## 2.2 Cooperation between the European SAIs and GAO

The US General Accounting Office (GAO) is an independent audit agency reporting to the US legislator (the Congress). GAO conducts audits etc. of federal programs. GAO's findings and recommendations are published as reports, in general addressed to the members of congress.

From the beginning GAO was a member of the F-16 SAI Conference on the same basis as the European SAIs of the F-16 participating countries, as well as being an advisor in performing the audits in the US. Later on with regard to the follow-on-buys and the production stage of the MLU, GAO has been cooperative in the advisory function.

GAO has always cooperated closely with the four European SAIs and has participated in the annual F-16 SAI Conferences. Starting in the 1980s GAO has performed audits on requests of the European counterparts; an example is 'Contract Pricing: Pricing of the F-16 Mid-Life Update Program Contracts' as of September 24, 1996, which was addressed to the European SAIs. Because of GAO's independence the reports given have had great impact both to other bodies within the USG and towards the EPGs.

## 2.3 Cooperation with DOD-IG

In the early 90s the Office of the Inspector General of the US Department of Defense (DOD-IG) participated in the conferences. The DOD-IG is an internal audit body within the DOD and reports directly to the US Secretary of Defense. For that reason the DOD-IG knows the ins and outs of the systems and the procedures used within the DOD. This gives an added value of the DOD-IG in relation to the F-16 SAI Conference.

Although willing the DOD-IG has been reluctant on accepting audit requests since 1995 due to severe budget

cuts. However, on request of the F-16 SAIs the DOD-IG has performed some audits on the F-16 programs, and the open minded attitude has been of importance to the European SAIs. The findings have improved the European SAIs understanding of US administration and accounting systems. e.g., in 1995, the DOD-IG identified a key-role player in the process of case closure, which was not known to any of the participants of the conference before.

## **2.4 Cooperation with DCAA**

The Defense Contract Audit Agency (DCAA) is the contract audit institution of the US DOD and in that position the equivalent of the EPG Defense Audit Agencies. In recent years the DCAA has presented various findings to the F-16 SAI Conference.

The added value of the involvement of the DCAA is the working knowledge of systems used by the USAF. During the conferences the dcca-representatives can assess the value of the statements of the program managers and accountants.

The DCAA also has a close working relationship to the European defense contract auditors. The defense contract auditors have over the past years had their own annual meetings, and representatives of the F-16 SAI Conference are usually invited to participate in these meetings.

## **2.5 The 'whys' of international audit cooperation**

International audit cooperation is of vital importance in order to be able to audit a multinational procurement program as the F-16 program.

Without such a cooperation it would hardly be possible to achieve objectives such as:

- having access to the necessary documentation within the USAF and at the contractors;
- having complete access to the minutes and other records of the SC and the different subcommittees

- understanding the US administration and accounting systems
- getting needed information and explanations
- a stronger position in possible conflict of interests;
- performing audits in an economic and effective way in order to provide the SAIs with a sound base for their judgments

## 2.6 Conclusions

The audit of the F-16 programs involves many parties. Since the European SAIs mostly have to use the audit findings of other auditing bodies in order to form their opinions, multinational cooperation is essential. The SAIs are of the opinion that international audit cooperation is a necessity to be able to audit programs like the F-16. The audit cooperation also saves a lot of time. For example, it is evident that US auditors, who know and understand the system of administration and accounting, perform the audits in a more effective manner than the European auditors, who have to learn and understand the basic of the system.

The extent to which an audit institution is independent of the auditee has to be considered when the SAIs are reviewing the different audit findings and when conclusions are drawn.

## 2.7 Recommendations

Coordinated multinational audits should be arranged whenever necessary in order to prevent a duplication of work between the various levels of auditing bodies. With regard to the audit provisions in the participating countries audit cooperation between the audit agencies of the MODs and the SAIs should be considered.

The audit arrangements have to be agreed upon by all participating countries and audit bodies.

Apart from the audit results the SAIs should be regularly informed by the auditee, the SC and the relevant sub-

committees, in order to have a full understanding of the ongoing business and to minimize the risk of ignorance.

### **3 US Rules, regulations and procedures**

According to the MOU between the US and the four European countries the US DOD has been charged with the management of the F-16 multinational program. The program is subject to US rules and regulations. As the USG has the management responsibility for the F-16 program, the US Secretary of Defense can act as final arbiter for a dispute on interpretations and implementations of the US rules and regulations.

The US Federal Acquisition Regulation (FAR) and the Defense Acquisition Regulation (DAR) are the basis for all negotiated contracts under the F-16 programs. Certain clauses of the European negotiated contract provisions are different from those of the US contracts. These different clauses have been necessary for the European part of the programs.

#### **3.1 Loadings**

From the EPGs there has been a general concern about the application of US rules and regulations. There was a lack of understanding of e.g. the significance the regulations have on the cost allocation between the EPGs and the USG. Part of the problem has been the interpretation, the intentions behind the regulations and the need for flexibility in a multinational program.

One decisive issue has been the relationship between cost charged and benefits received, and in this connection the sharing of indirect costs between the European and the US part of the programs.

Loading is defined as all charges added to or included in the price of F-16 items and services, such as production support overhead costs, material handling charges, General and Administrative (G&A) charges and profits.

The EPGs questioned the indirect costs on the European part of the F-16 program and the MODs of the EPGs expressed at a meeting in January 1977 the requirement of having detailed information on the loading matter. That was the starting point of all the subsequent investigations.

MOD and SAI representatives were in 1977 given a specific responsibility to investigate the legitimacy of the loadings and the acceptability of the respective bases of calculation, and the relationship between the effort performed and the magnitude of the loadings. The group consisted of members both from the EPGs, the USG and the European SAIs, and presented their report on loadings in July 1977.

The 1977 final advisory report from the group of MOD and SAI representatives demonstrated the consequences of the use of different principles in charging loading to European contracts. Certain costs might have been allocated directly by one and indirectly by another contractor.

The European SAIs have several times expressed concern about the lack of action from the participating governments in resolving the loading matter. In 1985 the European SAIs issued a Common European SAI paper on the loading issue of the F-16 programs.

The co-production program is of a unique character evolving from a series of political and economic decisions with a substantial production in four European countries based on an offset provision. The co-production differs from normal subcontracting i.e. in the way that the producing partners should be treated as equal partners. This co-production also had three separate production lines, and could therefore not be compared with normal subcontracting. The fundamental view of the SAIs have been that the indirect costs (loading) applied should be commensurate with the support rendered. From the start of the programs and up to the 80s there has

been findings indicating a certain over-allocation of indirect costs on the European part of the programs. The SAIs have taken for granted that any over-allocation of indirect costs affecting the sharing between EPG and USG will be taken into consideration when the F-16 programs are finally negotiated, and the final bill presented.

As mentioned before, the SAIs fundamental view was that the loading applied should be commensurate with the support rendered. Throughout the years, arguments from some US-contractor and GAO have been presented supporting this view, and multinational loading groups have recommended analysis being performed to substantiate this viewpoint. In spite of the fact that US and European authorities, multinational loading groups, and some US contractors and subcontractors consider the co-production arrangement within the F-16 programs unique (which demands procedures and practices different from those of ordinary subcontracting) the US members of the SC have been completely reluctant to have the issue raised to the MODs for a final solution.

Based on a General Dynamics (GD) study from 1977-78 a Steering Committee Working Group in 1984 concluded that the allocation methods used by GD resulted in a cost distribution between USAF and the European Air Forces that is within reasonable limits equal to the benefits received. In the 1985 SAI common paper on loadings the SAIs stated that the SC working group did not have sufficient factual and professional support for its conclusion, and therefore the group should have stated clearly that it was impossible to conclude whether or not the cost allocation commensurate with the benefits received.

As no final solution could be achieved, the European SAIs with the 1985 common paper were of the opinion that the loading issue could not be solved. In future co-production programs of the same nature the loading issue has to be dealt with before signing the MOU.

### 3.2 Logistic Surcharge

In 1986 the DOD Financial Management Regulation (FMR) was, however, changed and according to section 0722, Logistic Surcharge (LSC) should be applicable to FMS case lines for spare parts, supplies etc. to recoup an appropriate share of the cost incurred in the logistic support area. Therefore it should be part of the cost of the item supplied and should not be shown as a separate ad-on charge. So-called generic codes should be applied to the different subcases indicating whether LSC should be applied.

In the early 90s the SAIs found that in some subcases the generic codes had been changed a number of times. There were also findings indicating that generic codes were made without knowledge of future surcharge calculations. It seemed that inaccurate generic codes caused inaccurate LSC accruals. Due to the EPGs concern of applicability, SPO started to change the generic codes.

At the September 1996 F-16 SAI Conference representatives from USAF briefed about the status of the work of identifying and correcting LSC. In September 1996 status and actions on the LSC area was that USAF, DCAA, and the System Programs Office (SPO) had conducted a country by country/line by line audit of different cases. Audit determination revealed that some lines had LSC applied correctly, some lines were currently not being charged with LSC but should be, and finally some lines currently being charged LSC but should not be. The European MODs are responsible for action regarding the reimbursement of overcharged LSC. It is also still a matter of discussion as to whether LSC should be added to the European cases. This matter will be discussed further between the European SAIs, as a statement is expected in relation to whether LSC has been adequately and in all instances following the provisions.

### 3.3 Recoupments

With reference to the MOU, the parties agreed in TA No. 3 that the EPGs should receive recoupments covering nonrecurring costs in relation to the production and development of certain items:

- Base full scale development for F-16 aircraft (fixed amount per aircraft)
- Development support equipment
- Engineering change proposals
- Engine
- EPC tooling

The recoupments should be collected and disbursed to the EPGs as an appropriate share of nonrecurring costs for the peculiar equipment or duplicate tooling funded by EPGs in relation to third country sales.

No restrictions were agreed upon as e.g. to which countries the aircraft could be sold to. It is to be noted, that some of the EPGs had limitations in relation to which countries defense material equipment could be sold.

The total recoupments received from 3rd country sales as of June 30, 1996 are as follows:

	total recoupment
belgium	\$ 29,044,000
denmark	4,939,000
netherlands	20,229,000
norway	11,227,000
	<hr/>
	\$65,439,000

The SAIs have not evaluated the recoupments received as they have no knowledge of how the recoupments are computed.

### 3.4

## FMS principles for Payment

The payment principles of the F-16 programs has been applied according to the principles of the FMS system in general.

FMS is a procurement system through which eligible foreign governments and international organizations may purchase defense articles and services from the USG. The FMS government-to-government agreement is documented in a Letter of Offer and Acceptance (LOA). Normally, fund collection for FMS purchases shall be in advance of performance or delivery.

Advance progress payments from the purchasing governments, i.e. the F-16 European governments, to the US Government, i.e. USAF, are contractually projected in the LOA based on the estimated delivery schedule. Specific payment schedules are included in the LOA. Payment schedules are a consolidated formal presentation to the FMS customer of the estimates of cash requirements and potentially consist of two financial categories; an initial deposit and an estimated quarterly billing amount.

The EPGs pay according to quarterly billings that normally are based on the payment schedule. The money is transferred to the US Federal Reserve Bank (for the F-16 program for certain countries a US commercial bank). Defense Accounting and Finance Service center (DFAS) then draws whatever necessary funds out of the current bank account and transfers the funds to a trust fund.

The FMS trust fund represents the aggregation of:

- Cash received from the purchasing countries and international organizations that are credited to open FMS cases
- Funds that are in excess from different closed FMS cases
- Funds regarding implementation of new FMS cases or other agreed financial
- arrangements.

The payment schedules are estimates for planning purpose. The US will request payment in accordance with the payment schedule unless costs, including 90-day forecast requirements, exceed amounts required by the payment schedule. If this occurs, the US will provide a new payment schedule via LOA modification. The purchaser is required to make payments in accordance with quarterly billings regardless of the existing payment schedule.

According to a common SAI report of 1979 regarding the US F-16 Programs Management and Contract Administrations the F-16 programs progress and deliveries were delayed in the seventies. Consequently, incurred costs were also behind schedule. As the European governments were paying in accordance with inadequate payments schedules large unearned advances were accumulated in both the US bank accounts and in the FMS trust fund. According to the agreements the F-16 System Programs Office (SPO) is responsible for adjusting the payment schedules in accordance with the physical progress of the program.

### 3.5 Conclusion

Based on the audits carried out in the past, it is the opinion of the SAIs that the financial management of the original F-16 program in general has been acceptable. But as the USG has been in charge of the management of the programs, the decisions are subject to US interpretations of the laws, regulations and agreements connected to the F-16 programs. This has created some problems concerning the definition of co-production and cooperative programs between the European countries and the US. One of the main problems regarding the use of US rules and regulations has been that the implementation of the rules and regulations have changed several times during the period of the programs. These changes may have an impact on the price to be paid by the EPGs for the aircraft. In this regard a discussion is still going on about the question whether a logistic surcharge has to be paid by the EPGs to US Government. Furthermore, there has been a lack of information from the US towards the European counterparts about the changes

regarding the implementation of rules and regulations. Changes in rules and regulations and lack of information has made it very difficult to audit these cooperative programs.

One of the main areas in the MOU is the participation of European Industry. The F-16 programs includes a unique aspect of partnership and cooperation between the US and European companies, which the MOU refers to as co-production. The co-production arrangement differs in many ways from normal subcontracting, i.e. the producing partners should be treated as equal partners. This co-production also had three separate production lines, and could therefore not be compared with normal subcontracting.

The SAIs are of the opinion that a more flexible use of the rules and regulations of the programs would have been beneficial for the cooperation within the participating countries. With a program of this scale the European MODs should have been able to transfer money directly from their national banks to the US DOD based on agreed milestones and/or delivery schedules, and should not have had to use the payment principles of the FMS system. When using the FMS payment principles there should have been a clear and common agreement of who is responsible and in charge of alterations of the payment schedules in case of changes in the deliveries etc.

It is also the opinion of the SAIs that it would have been beneficial if the European MODs had provided sufficient legal advice before entering into a cooperation program subject to US interpretations of laws, regulations and agreements. Sufficient legal advice might have reduced some of the problems concerning the use of US laws, rules and regulations. Investigations regarding the consequences of using US rules and regulation in this multinational programs should have been considered before entering into the programs. A separate agreement regarding the consequences of using US rules and regulations should have been considered, as the MOU fails to be specific and exact when it comes to this issue.

### 3.6 Recommendations

Based on the experiences from the F-16 programs the following issues should be taken into account when contemplating any other multinational or bilateral program/project in the future:

- The provisions for contract administration should be reviewed by the MODs prior to the signing of the MOU
- Different aspects of co-production should be reviewed on beforehand and an agreement on a common definition of co-production should be made. As co-production differs from normal subcontracting in many ways, specific regulations should be worked out for the co-production, including specific rules for loading of indirect costs. The implementation of additional agreements should be insured in the MOU and in contracting.
- In cases of coproduction parties come to long lasting agreements. The MOUs therefore should contain provisions to deal with changes of (the implementation of) rules and regulations.
- Sufficient legal advice should be provided for before entering into a new MOU.  
This to insure a better awareness of problems concerning the use of specific rules and regulations.
- Payment principles should be based on common payment procedures and not on FMS procedures
- An agreement regarding sales and recoups of common developed material sold to third countries should be established on beforehand

## 4 Administration of programs

### 4.1 The Steering Committee (SC), the subcommittees, the F-16 Permanent Secretariat and the System Program Office (SPO)

According to the MOU it was decided that the overall control of the F-16 multinational fighter program should be exercised by a SC with a representative of each participating country. The SC should lay down guidelines of action and procedures for all areas within the cooperation and advise the System Program Office, which is the body in the USAF which manages and controls the program in areas covered by the MOU.

It was also laid down in the MOU, that the SC should appoint subcommittees whose task were to monitor and follow-up more closely and to advise the SC on four special areas within the cooperation.

The subcommittees are:

- Subcommittee on Industrial Matters
- Contractual and Financial Subcommittee
- Operational Subcommittee
- Logistics Subcommittee

The subcommittee for industrial matters, which was the first subcommittee established by the SC, had the responsibility of monitoring planned and actual co-production orders and other compensation orders to ensure compliance with the MOU regarding appropriateness of the European subcontracting and to make appropriate recommendations for the resolutions of disputes.

The Contractual and Financial Subcommittee (C&F) was assigned to monitor the contractual and financial matters and evaluate proposals within this area from the other subcommittees.

The operational subcommittee was assigned to monitor the operational and tactical requirements to e.g. the weapon systems.

The logistic subcommittee's task is to monitor issues concerning the supplies and the technical matters. This subcommittee is closely connected to the operational subcommittee.

All four subcommittees are still operating.

Finally, a F-16 multinational fighter program secretariat was established in Brussels in order to support the SC and to take care of the day-to-day management and the practical arrangements in connection with meetings etc. The secretariat is headed by a secretary general.

Further, it was decided to establish a F-16 System Program Office (SPO) acting as an overall program implementation organization. Representatives from the EPGs were invited to send representatives to the spo. The representatives were officers, with military or specific technical knowledge.

It is the impression of the working group that the SAIs only to a minor extend have used the expert knowledge of the national representatives at spo. Among the tasks of the spo were the planning and organizing tasks as well as tasks in relation to control and coordination with the entire F-16 program in relation to the Air Force Plant Representative Office, the Contract Administrative Service Europe (CASEUR) and the Defense Administrative Services.

When dealing with the US organization of the F-16 program it is very important for the European SAIs to know the relevant bodies in the US administration due to the fact that SAIs do not get acquainted with the various bodies during the audit process. In the past the USAF organization currently changed and therefore it has been difficult for the European SAIs to know which body to communicate with when a sudden issue arises.

When the F-16 SAI Conference in 1995 discussed the necessity of speeding up the case closure procedure it was recognized that it was not spo that was in charge of a strategy for case closure, but another unit within the USAF. The case closure manager was in charge of working out a case closure master plan. It is therefore of great importance that the various bodies participating in the SAI conference can supply the relevant information.

As the original F-16 program is almost finished and the MLU program is in an initial phase it is to be considered whether the established organizations ought to continue. It is the presumption of the European F-16 SAIs that efforts should be placed on the closing of the program and that a continuation of the established F-16 organization should be adapted to the MLU program which is of a much smaller scale. The US is not participating in the MLU production program.

#### 4.2 Management and administration of the F-16 programs

In 1979 the four European SAIs agreed to carry out performance audit of the F-16 program and contract administrative tasks which the US authorities were in charge of. The investigation should include assignments in the US as well as in the European countries. The overall purpose of the audit was to make it possible to form an audit opinion as to whether the assignments were managed in an adequate way in relation to the rules and regulations which the parties had agreed upon as part of the MOU and the F-16 program.

It was decided to establish a working group to deal with the matter. The group consisted of representatives from the SAIs of each EPG.

The purpose of the working group was primarily to outline the scope of audit, to perform the audit and to address the US GAO in order to ask for assistance during the audit. Finally, the working group should report to the European SAIs.

The report was submitted on October 26, 1979 and the general findings were as described in the following:

- The F-16 contract administration performed by the USAF was carried out closely following the US procurement regulations. There was a need for handling the regulation in a more flexible way, especially in relation to the loading problems.

Also GAO had recently in a report focused on a need for a more flexible contract administration.

- Agreements concerning compensation buys ought to be more specified in order to indicate to what extent each participating country was compensated.
- All matters in relation to third country sales ought to be solved before a contract was signed, including matter in relation to direct sales from the main contractor to third countries.
- The size of progress payments should currently be evaluated so that the aMOUnts transferred were closely related to the factual progress in production and deliveries. It was essential to avoid the accumulation of transferred aMOUnts.
- Finally, it was to be secured that the SAIs of the participating countries would have access to investigate and to carry out audits on location within every organization in charge of administrative assignments within the F-16 programs. This should also be the case when the organization in question was part of the governmental organization.

#### 4.3 The CCH-system and CASEUR

In 1978, a currency and payment center, Currency Clearing House (CCH) was established in order to fulfill the requirement in the MOU stating that no contractor should gain or lose on fluctuations in currency exchange rates in the purchasing countries. The expenses for CCH were paid by

the US and the European Governments. To illustrate the function of CCH the following example can be mentioned: In order to pay a European subcontractor, an American contractor paid the amount in dollars to the Currency Clearing House which then paid the European subcontractor in local currency of the country in question after converting the sum according to the fixed rates of exchange stated in the MOU. For this purpose the Currency Clearing House had a bank account in the currency of each country and the European purchasers were asked to transfer the quarterly payments in European currency as specified.

In order to establish a fund of European currency for payments on account, the European countries paid in advance in European currency to the Currency Clearing House bank account in European banks. The CCH was also used by the US.

The European SAIs were interested in examining the allocation of interest rates, currency losses and profits among the EPG countries which was a result of the fixed currency agreement used for payments to European contractors.

The SAI Conference decided to examine the allocations because there were no guidelines for the use of escalation factors which were considered to influence the final price to be paid by the purchasing countries.

The Contract Administrative Service Europe (CASEUR) in Brussels was established in order to represent the Air Force Contract Management Division and the F-16 spo. The tasks were to administer the European contracts to begin with. The expenses for the CASEUR were paid by the European Air Forces, USAF and third countries. The task of CASEUR was to deal with logistic problems and they employed specialists in order to deal with the quality aspects of control of prime and subcontractors in the European countries.

In 1977 the SAIs were informed that the CASEUR had used resources for other purposes than the F-16 contracts. The SAIs consequently decided to examine the accounts.

The investigation showed that the number of staff could probably be reduced. The investigation also showed that travel expenses concerning USAF visits at the CASEUR was also paid by the European countries. Finally, the investigation showed that a number of other saving efforts could be implemented. The USAF was willing to act upon the findings of the audit group.

In 1980 it was decided among the SAIs that the working group should carry out further investigations. Thus a critical-economic investigation was conducted of the contract administration office in Brussels (CASEUR) which in fact was US administered but European paid. Procedures used by the CCH were also investigated. At that time the CCH was also located in Brussels and its task was to ensure the fulfillment of the MOU's requirement that no supplier should gain or lose on variations in official rates of exchange in the purchasing countries.

In addition, the working group examined the area of responsibility and procedures employed by the Security Assistance Accounting Center (SAAC) which carries out every accounting transaction concerning the sale of military equipment to other countries. The SAAC is thus the invoicing authority.

The working group also investigated the calculation and use of price regulating factors (Economic Price Adjustment), including objective, basis and method of calculation. The group, moreover, examined price regulation clauses in contracts with some major contracts and some minor sub-contractors as well as a number of practical samples of calculations. Finally, a number of other areas were examined including the loading principles utilized by the aircraft engine suppliers.

The audits showed that there was a need for down sizing of the CASEUR. The USAF implemented both this and other

audit recommendations. The audit performed made it possible for the SAIs to form their own opinion in relations to the management and administration of the programs, and the examination of the handling of certain important financial principles.

#### 4.4 Conclusion

As the original buy is almost finished and only the follow-on buys and the MLU program continue, it is the conclusion of the SAIs that the administration bodies of the F-16 program management should be considered reduced after the closure of the original buy.

The performance audit of the management and administration of the F-16 programs gave the SAIs a good impression of the various roles of the US authorities in the administration of the program and the audit conclusions lead to the recommendations mentioned.

The conclusion of the examination of the Currency Clearing House was that if the fixed currency and the Currency Clearing House was not used, it could result in a currency profit for the contractor.

In the 80s the SAIs investigated the CASEUR and found that there was a need for down sizing. The USAF implemented this and other audit recommendations. In additions the SAIs also investigated the procedures used by the Security Assistance Accountings Center and the implementation of the economic price adjustment agreement as well as the loading principles. The audit performed of the original buy made it possible for the SAIs to form their own opinion in relation to the management and administration of the programs, and the examination of the handling of certain important financial principles. It also enabled the SAIs to form an opinion and to report the findings. Finally, the SAIs were in a position to give recommendations, which has contributed to the improvement of the administration etc.

It is the opinion of the working group that the SAIs could probably have gained from a closer cooperation with the national spo representatives.

#### 4.5 Recommendations

- Down sizing of the F-16 management organization has to be considered after transition from the original buy to the MLU program
- On the basis of several audits carried out in the past the SAIs have been able to audit/monitor the programs and give adequate recommendations. As the administrative conditions have changed extensively since the beginning of the program there seems to be a need for an analysis especially in relation to the management of the MLU program.
- In possible future cooperation programs down sizing of different management bodies has to be currently considered
- In the future the SAIs should work more closely with the Senior National Representative (SNR) in the spo in order to get more updated expert information

## 5 Contract audits

The F-16 original buy, follow-on-buys and the most recently extension of the life of the aircraft, Mid-Life Update (MLU), are all based on the MOU dated June 10, 1975, between the USG and the European purchasing countries; Belgium, Denmark, The Netherlands and Norway.

According to MOU, the US DOD has been assigned with the management of the F-16 multinational programs.

In general the DCAA is in charged of the evaluation of price proposals and auditing of contracts and subcontracts for the US DOD. GAO is according to US law in charge of the responsibility of monitoring the use of US public funds. The SAIs in the EPCs have similar responsibility as GAO with reference to their national laws. The EPCs also have their own defense contract auditors responsible for the audit of price proposals as well as the auditing of contracts and subcontracts within their own MODs.

### 5.1 The original program and the follow-on-buys

The F-16 MOU has subsequently resulted in a number of Technical Agreements, whereof ta No. 1, "Audits of price proposals and contracts/subcontracts by USG and EPG defense audit agencies", describes the conditions for audit of pricing prime- and subcontracts as well as additional contract auditing work etc.

As stated in ta No. 1 both the USG and the EPGs recognize the necessity of an appropriate evaluation of price proposals and auditing of contracts and subcontracts by responsible governmental audit agencies in order to protect the interests of all participating governments. Pursuant to the MOU and in accordance with the spirit of partnership and cooperation of the multinational programs, the USG and the EPGs agreed

to pay due attention to the auditors' evaluation of price proposals and auditing of contracts and subcontractors.

According to the original ta No. 1, the Comptroller General of the United States or his authorized representative, are given the right to exercise his rights through the authorized audit agency of each EPG regarding subcontracts placed in the EPCs under the multinational F-16 fighter programs. The Comptroller General of the US or his appointed representatives may also accompany the EPG auditors in the performance of an audit.

The Comptroller General's right to audit contracts and subcontracts placed in the US is exercised by GAO. According to ta No. 1, the EPG auditors have the right, as audit representatives, to accompany GAO auditors in the performance of such audits.

Based on the original ta No. 1 both the European Defense Contract Auditors and the European SAIs were given unlimited access to audit cost and pricing data related to both pre and post calculations of contract proposals and contracts at the US subcontractors and the US prime contractors regarding the F-16 program in the 80s. European auditors also participated in audits performed in the US.

The cooperation between DCAA and their European counterparts was also a valuable element. According to the 1991 SAI common lessons learned paper the SAIs stated to the European MODs that there had been a lack of feedback to the contract auditors about the results of their audits in the sense that specific impacts of the DCAA-audits within the Price Negotiation Memoranda (PNM) were not always clear. pnm is a report worked out by the USAF as a review of contract negotiations and the pricing of the contracts. In some cases it looked as if pre-award audits had been performed after the concluding of a firm fixed price contract without the possibility of adjusting the prices according to the audit findings.

## 5.2

### The MLU program

After discussions and consultations among the EPGs and the USG on the framework of the audit relating to MLU, ta No. 1 was revised in 1993. The process of revising TA No. 1 was lengthy and profound. The SAIs participated in the discussions and formulations regarding the revision, and the revised ta No. 1 was co-signed by representatives from the SAIs.

The revised agreement gave the EPG auditors access to the basic information of the contract negotiations including the Price Negotiation Memorandum (PNM). The revised ta No. 1 does not explicitly state the SAIs access to audit, but the interpretation has been that the SAIs shall operate through their own defense contract auditors.

It is essential when auditing material procurement programs that the SAIs have access to original pricing data, in order to be able to analyze and evaluate the basis for contracting hereby enabling the auditors to form an opinion as to whether the agreed price is fair and reasonable. As mentioned before the European SAIs had unlimited access right to cost and pricing data in the 80s.

USAF has only participated in the development phases and is therefore no purchaser of the MLU kits. However, on behalf of the EPGs the MLU production contracts were negotiated between USAF and Lockheed Martin Tactical Aircraft Systems (LMTAS) during the period July 1994 to April 1995.

When requested the USAF was precluded from providing the PNM's and access to supporting documentation the European Defense Contract Auditors, because statutory provisions governing the control of business proprietary information provide for legal action against persons employed in public sector if they release the information without the businesses authorization. The contractor had decided to categorize the conclusive documents as proprietary data, after which neither documents nor PNM's could be handed over to non-US persons or entities. The

European defense contract auditors were thus unable to evaluate whether the findings in their reports of the audit of price proposals concerning European subcontractors affected the contract negotiations.

### 5.3 The "Pragmatic Solution"

As a result of the discussions about the audit access the USAF and the EPGs and the contractor decided in December 1994 that USAF should work out a White Paper as a pragmatic solution to the problems with the implementation of ta No. 1. The intention of the White Paper was to give the EPGs, including the Defense Contract Auditors, a review of the completed MLU production contract negotiations and thus enable the MODs to form an opinion as to whether the agreed price was fair and reasonable. The White Paper was worked out June 30, 1995, but it did not include all contracts due to the fact that not all negotiations had been completed at that time.

No representatives from the European SAIs were invited to the meeting where it was decided to work out a White Paper, in spite of the fact that they had cosigned ta No. 1.

The pragmatic solution and the White Paper were discussed at the F-16 SAI Conference in September 1995. Concern was expressed that SAIs were unable to perform any audit and thus report to their parliaments due to lack of access to basic original documents concerning the contracts.

GAO and USAF discussed the possibility of a limited access to review some selected PNMs. This solution was, however, not applicable due to the fact that USAF responded negatively.

### 5.4 GAOs audit of the pricing of MLU contracts

Due to the problems of access the Norwegian SAI acting on behalf of the European SAIs requested in January 1996 GAO to undertake an audit of some selected contracts. On the

basis of this GAO offered to perform an audit of four contracts, one selected by each of the European SAIs.

Taking the current situation into account, the SAIs agreed that it was probably the only suitable solution at the moment to let GAO audit a limited number of contracts in order to verify the information given in the White Paper.

During a meeting with USAF and at a visit to lmtas in March 1996 the European SAI representative attempted to have a list of MLU production contracts worked out. The authorities asked had, however, no intention of working out such a list, as a result selection of contracts had to be based on a very general survey of contracts included in the White Paper as well as additional information received from DCAA.

The scope of audit which was given to GAO was as follows:

- GAO is to perform an audit of four PNMs selected by each of the four European SAIs. The PNMs are to be evaluated in order to determine whether the negotiated prices are fair and reasonable and whether the rates and factors used are the same as those used on US Contracts.
- GAO should also provide the European SAIs with feedback about how the audits performed by the European Defense Audit Agencies affected the contract negotiations of the four selected PNMs.
- GAO should complete the audit and present the final report at the F-16 SAI Conference in September 1996

At the F-16 SAI Conference in September 1996, GAO presented the result of the audit. The findings were summarized in an audit report of September 24, 1996; "Contract Pricing: Pricing of the F-16 Mid-Life Update Programs Contracts."

The findings of the audit were in brief:

The contractors proposed and the Air Force negotiators accepted rates and factors to price the two MLU contracts that were different from those used to price contemporaneous US government contracts. The contract prices for the European participating governments were \$9.4 million higher due to the use of different rates and factors.

In the case of the Lockheed Martin contract, the Defense Plant Representative Office Commander certified that the forward pricing rate agreement (FPRA) rates and factors used to price the MLU contract were the same as those used to price all other contracts awarded to Lockheed Martin during the effective period of the agreement. Despite this certification, a special set of higher rates and factors were used to price the MLU contract rather than those called for in the fprra, thus increasing the price for the EPGs by \$8 million. In addition, the Air Force negotiated two other contracts with Lockheed Martin using lower fprra rates and factors on the same day the MLU contract was negotiated.

As for the Northrop Grumman contract, Air Force negotiators used a general and administrative (G&A) overhead rate established for use in pricing foreign military sales contracts rather than a lower domestic rate established for pricing US government contracts. In addition, Air Force negotiators used two incorrect rates in pricing the MLU contract. These two conditions increased the price to the EPGs by \$1.4 million.

DCAA conducted preaward audits of the prime contractors' price proposals and questioned various costs. In addition, DCAA reported large amounts of unresolved costs because audits had not been made of several subcontractors price proposals. Except for the rates and factors used for Lockheed Martin Contract, Air Force negotiators used dcaa's audit results to assist them in negotiating lower prices for the prime contracts.

Lockheed Martin and Northrop Grumman employed safeguard techniques required by US procurement

regulations to evaluate and negotiate subcontract and material prices for prime contracts. Air Force negotiators accepted the proposed and negotiated subcontract prices as fair and reasonable based on the prime contractors' evaluation and negotiation efforts.

In continuation of gao's report the SAIs requested GAO to provide an overall position on the fairness and reasonableness of the contract prices in general for the MLU program. In a letter of October 7, 1996 GAO stated that: "Based on the result of our review, we consider the negotiated prices of the contracts to be fair and reasonable."

January 2, 1997 the USAF addressed a letter requesting GAO to revise the report concerning contract pricing; Pricing of F-16 Mid-Life Update (MLU) Programs Contracts. In the letter USAF stated that copies of the report had been given to many individuals and organizations who did not realize that much of it was nullified by the GAO letter of October 7, 1996 to the chairman of the F-16 SAI Conference. The USAF was of the opinion that the report as originally written was misleading in some aspects, and therefore in the interest of fairness and accuracy asked GAO to revise and update the report and to incorporate the contents of gao's letter of October 7, 1996. GAO answered to the USAF January 14, 1997, stating that no information had been provided that would nullify the report. Therefore, GAO believes that the report fairly and accurately described the circumstances surrounding the negotiation of the MLU contracts.

## 5.5 Conclusion

The audit cooperation between DCAA, the European defense contract auditors, GAO and the European SAIs has been valuable. The principles and the main provisions of ta No. 1, especially the audit cooperation between the US auditors and the European counterparts worked quite well during the audits of the original F-16 programs. However, according to the 1991 SAI lessons learned paper there was a

lack of feedback in relation to the European defense contract auditors.

In relation to the problems with the implementation of the revised ta No. 1 to the MLU program, it is the opinion of the SAI that gao's audit shows that there is a significant need for access to information regarding the contract negotiations conducted by the USAF on behalf of the European purchasing countries.

No detailed information was given on the particular circumstances that apparently existed at the contract negotiations neither in the White Paper nor during different briefings which were given to the SAI representatives.

On this basis the SAI concluded that the pragmatic solution of December 1994, as reflected in the White Paper, was not an acceptable solution. The SAI has found it important to stress that it is the European MODs' responsibility to ensure that the SAI has the necessary access to data, in order to base the audits on original documents. This situation could probably not have been foreseen by the European MODs.

The SAI has consequently concluded that it has not been possible to get the required access to adequate information. It has therefore not been possible to audit the basis of the pricing of the MLU contracts or to review the contract negotiations concerning this significant purchase.

It is the opinion of the SAI that the principles and the main provisions of ta No. 1 should have been included in the purchase contract between the USAF and the prime contractor. However, there is no doubt that the MLU procurement is based on the MOU and consequently ta No. 1 applies to the MLU program. Sufficient legal advice could have given the European MODs knowledge about possible access problems before the prime contract was signed. Such legal advice might have given the MODs a possibility of securing the audit access. However, it would have been relevant if the USG had informed the mod that a problem might occur.

The revision of ta No. 1 was implemented in order to safeguard the rights of contract audit for the partners involved. However, the result from the European point of view has been the opposite.

## 5.6 Recommendations

In any future joint or cooperative program arrangement the principles and the main provisions of ta No. 1, especially the audit cooperation between the US auditors and their European counterparts should be included.

The principles and provisions mentioned should also be a part of the prime contracts. The European MODs should provide sufficient legal advice before entering into any future joint or cooperative/multinational programs arrangement, so that legal problems that could have been foreseen should be eliminated before signing any contract/contracts.

An adequate feedback and timely reporting of the audit findings of the different audit bodies should also be arranged.

## 6 Offset initial buy

### 6.1 Background

As a condition for participating in the F-16 aircraft programs the EPGs required that a part of the production should be placed in Europe. This is referred to as offset. Section 1 of the MOU commits the US to a minimum overall offset to the EPCs of 58 percent of the initial EPG F-16 procurement. If it was impossible to comply with the F-16 aircraft production, other US productions placed in the epc might be considered as offset, as long as this compensatory work was of a comparable technological level. This is called indirect offset.

Under terms of MOU, US DOD acting through prime contractors, required that development and production contracts provided industries of the EPCs with work. It was, however, a condition that this work should be based on reasonable competitive terms. While procedures for resolving issues of "reasonable competitiveness" were approved by the Steering Committee, there was no agreed exact definition on this concept.

The MOU is specific with respect to the amount of combined offset between the US and the EPG as a group, but there is no provision requiring the equalization of offset between the EPGs.

### 6.2 Offset status

The F-16 spo briefed about the offset information of F-16 EPG Multinational Fighter Programs achievement at the F-16 SAI Conference in Copenhagen, September 1996. This is the most recent information that has been given on the status of the offset, and is dated March 1996.

The status of the offset regarding the initial buys:

	belgium	denmark	netherlands	norway	total
Quantity of Aircraft	116	58	102	72	348
Procurement value (PV)	\$ 878.9	\$ 449.2	\$ 800.5	\$ 671.4	\$ 2,800.0
Offset Commitment (58%)	\$ 509.8	\$ 260.5	\$ 464.3	\$ 389.4	\$ 1,624.0
Offset Value Placed	\$ 683.8	\$ 239.7	\$ 422.7	\$ 301.4	\$ 1,647.6
Offset % of pv	77.8%	53.3%	52.8%	44.8%	58.8%

Initially no offset accounting procedures and definitions were established. Later on such procedures have been established but they did not deal with non-financial economic issues (jobs, training, development of industry, cooperation with American industry). The SAIs can therefore not confirm the accuracy of the offset percentages. As a result of this, there is no clear and accepted definition on how to calculate offset, which consequently increases the difficulties in calculating the offset per cent.

This matter has already been studied in 1983 and 1984 by the Subcommittee for Industrial matters (SCIM). They concluded that the differences between the offset percentages as communicated by the spo depend upon the nature of the offset orders and the value of the imported parts that are being used for their manufacturing. More specifically, the scim explained in 1983 that if the value of parts imported for the manufacturing were not taken into account, the offset percentages would change.

### 6.3 Conclusion

According to the figures presented the total offset per cent achieved is 58,8 for the EPG as a unit, and the amount of combined offset between the US and the EPGs is thus

obtained. The offset per cent has been very stable for a long period, and it is not expected to change much.

However, as mentioned before, the SAIs are not certain that the offset percentages presented by US authorities represents the exact offset status. This is due to the lack of offset accounting procedures and of common understanding regarding the calculation of the offset. In the opinion of the working group it is therefore almost impossible for the SAIs to assess the effect of the offset calculations today, i.e. concerning the creation of jobs and transfer of technology. Such items were important aspects during the decision procedures and the evaluation of alternatives. The SAIs might decide to evaluate also these non-economic aspects.

#### 6.4 Recommendations

Future co-production programs should specify, to the extent possible, the distribution of offset to each of the participating countries taking into account each country's industrial capacity. In this connection a separate offset percentage for each country in proportion to its buy should be agreed upon.

Offset accounting and evaluation definitions and procedures also concerning non-financial economic issues have to be established before entering into a contract / program, and a common and defined understanding on how to calculate the offset percentages has to be established.

## 7 Contract and case closure

### 7.1 The standard case closure procedure

The long and complex case closure procedure is divided into two phases :

- the first phase consisting of the preliminary closure, case by case, of all the contracts associated within the same LOA line (subcase), leading to the closure of the various LOA lines
- a second phase consisting of the preliminary closure of all the LOA lines themselves.

At the conclusion of this second phase, a case closure certificate including a final financial statement shall be issued to each participating country.

The standard case closure procedure requires that all articles and services ordered must be delivered and paid for in order to close a line, a subcase, or a total case. Financial accounting balances must also be reconciled and all discrepancies must be resolved. Even if all deliveries concerning the EPG original 998 program are now completed, some contracts, however, remain open because the deliveries to other customers are still in progress.

According to the case closure master plan regarding the EPG original 998 program, which was submitted to the SAI Conference in September 1996, it would not be possible to close the EPG original 998 program finally before year 2006 by using the standard case closure procedures.

The discussions about the case closure of the EPG original 998 buy started in 1985. In 1988, a case closure working group (CCWG) was established by the F-16 spo in order to prepare the final invoicing.

In June 1990, spo representatives informed the SAIs that the final closure of the F-16 998 buy would probably not occur until 1997.

The European SAIs were of the opinion that such a long period of time for case closure was not acceptable. In a letter of February 1991 the SAIs directed a lesson learned to the SC recommending the SC to organize the case closure process, by provisions in the program arrangements, in such a way that it could be completed within a reasonable period after delivery of the last item for each subcase.

Subsequently, the SAIs have insisted upon the need for speeding up contract closure procedures. During the SAI Conference in 1994, the spo agreed to prepare a semi-annual report on the progress of the case closure.

A working group meeting consisting of representatives of the SAIs, DOD-IG, DCAA and spo was held in order to examine the progress and to inform the SAIs about the case closure process.

In the meantime, at the request of the SAIs, the DOD-IG performed an audit of the case closure process. The results of the audit were presented in a written report at the SAI Conference in September 1995.

## 7.2 The accelerated case closure procedure

The DOD-IG audit findings suggested that the 1997 objective for case closure could not be met. However, in order to be able to meet this deadline, the DOD-IG directed several recommendations to the competent US authorities. Among others, the report focused on the possibility of using accelerated case closure procedures as well as the need to draw up a case closure master plan.

Such a case closure master plan was effectively drawn up for the EPG original 998 buy and was presented to the SAIs at the Conference in September 1996 and September 1997.

The discussions regarding a possible use of accelerated case closure procedures were quite long and profound. The European SAIs also discussed the matter with their respective MODs. An agreement concerning the approval of an accelerated case closure procedure was reached on November, 20 1996 (SC Arrangement No. 47) between the USG and the EPGs. The agreement should make it possible to achieve the December 1997 objective for the closing of the original 998 F-16 program.

US regulations allowed the closure of the FMS case of a specific client, i.e. the EPGs, to whom all deliveries were made and who have fulfilled all their obligations, although contracts were still open for other clients in the US accounting systems. a suspense account for each EPG will be established and will remain open until all the contracts are finally closed.

In practice, this accelerated closure procedure is in fact an extracting of the EPGs share from the contracts remaining in the process and then closing them.

According to the accelerated closure flow plan submitted by the case manager at the SAI Conference in September 1996, this closure would become effective by December 1997, so that all the EPG original cases could be officially closed in May 1998. At the Conference of September 1997 the case manager announced a delay; the case closure would not be effective until June 1998.

### 7.3 **Master plans for the closure of the various F-16 LOAs**

A case closure master plan for the original 998 buy was submitted to the SAIs at the F-16 SAI Conference in September 1996..

The case closure master plan for the follow-on buy is presently being prepared and will be presented to the SAIs during the annual Conference in 1997.

As for the MLU, the case closure master plan will be drawn up later in order to be submitted to the SAIs in 1998.

This way, the discussions between the SAIs and their respective MODs as well as the various US authorities have contributed to the acceptance of the accelerated case closure procedure by all the parties, however until now only for the EPGs 998 buy.

The Steering Committee Arrangement No. 47 enables the SC to determine when a case can be closed under the accelerated procedures. To date the SC has only prepared such a decision concerning the original 998 F-16 buy.

#### 7.4 Conclusions

The initial F-16 contracts were signed in 1977 and will be closed in December 1997 if all terms are respected.

From the date of delivery of the last aircraft (1984) to closure of the contracts a 13 year period will have gone by which in the SAIs opinion is to long a period for several reasons. One of them being the difficulty to check the proper execution of the contract and to enable the SAIs to evaluate whether approved budgets have been exceeded.

#### 7.5 Recommendations

By signing the Steering Committee Arrangement No. 47 the EPGs have agreed that the accelerated case closure procedures should apply to the F-16 program. As the text of the agreement leaves the SC free to determine at what time these procedures could be started for each case, the SAIs recommend that the accelerated case closure procedures be considered both for the follow-on-buy, the MLU and for future programs.

## 8 Pricing principles

### 8.1 The level line pricing principle

The level line pricing principle dictates that the EPGs shall pay the same price per aircraft for each of the 348 aircraft although the cost of the learning curve effect will not be the same for all aircraft.

The level line pricing principle for the F-16 program is defined as the aggregate cost for the EPG non-peculiar part of the initial EPG F-16a and F-16b aircraft procurement co-produced in accordance with the MOU divided by the total number of EPG F-16a and F-16b aircraft, respectively. The level line aircraft price includes recurring and non-recurring costs in relation to airframe, engine, radar and Government Furnished Aeronautical Equipment (GFAE) cost, but excludes industry management cost, duplicate tooling costs and recoupment for base Full Scale Development (FSD) for the F-16 aircraft and minor development support equipment.

One of the main focus of the F-16 Conference was interest in shedding light on whether the aMOUnTs charged to the account of each purchasing country were correct. For this reason DOD-IG examined all deliveries and distribution of cost according to the level line pricing principle i.e. the same price per aircraft for each of the 348 aircraft. Discrepancies were found during the audit, and corrections were made.

The DOD-IG also concluded that non-recurring costs related to technical changes during the implementation of the programs had not been fully charged to the European countries and therefore extra payments should be invoiced.

## 8.2 Not-to-Exceed-price principle

In accordance with the MOU the not-to-exceed price per aircraft is \$ 6,091,000 price level 1975. The US authorities accepted this price as a fixed goal in order to prevent the expenses from increasing. Among the European countries the price is considered to be the maximum amount approved prior to the budget approval process.

The F-16 spo is currently reviewing the not-to-exceed price which is based on the factual expenditures in price level 1975.

The not-to-exceed price is consisting of the engine and airframe, deliveries from the US Government, the share of development costs and costs related to duplicate tooling.

## 8.3 Conclusion

The level line pricing principle is in the SAIs opinion an important principle which makes it possible to level the price differences among the EPG countries and differences prior to the time of production.

The not-to-exceed price is an important principle in relation to the SAIs assignments in order to assess whether the approved budget has been exceeded. The very lengthy closing process of the original buy and the recently accepted accelerated case closure procedure makes it impossible, within an acceptable time limit, to evaluate completely whether the approved budget has been exceeded.

## 8.4 Recommendation

The level line pricing principle is important to agree upon also in connection with future programs so that price differences between the production lots, appearing throughout the lengthy production period, are leveled. The principle also means that the producing countries are to pay the same price per aircraft. This principle is considered

rather fundamental in a co-production program of such a large scale.

The not to exceed price principle is the main fixed aMOUnt which enables the SAIs to ensure that the aMOUnt spent is in compliance with the approved budget. The fact that the SAIs currently are reviewing the development in the not-to-exceed price has no doubt had an impact on the financial management and the efforts to meet the budgetary goals. The principle has worked very well and should be considered implemented also in future programs.

## Enclosure 1 Acronyms and abbreviations

ASPR	Armed Services Procurement Regulations
C&F	Contractual and Financial Subcommittee
CAS	Cost Accounting Standards
CASEUR	Contract Administrative Services in Europe
CCWG	Case Closure Working Group
CHH	Currency Clearing House
DAF/AFAA	Department of the Air Force, Air Force Audit Agency
DAR	Defense Acquisition Regulation
DCAA	Defense Contract Audit Agency
DFAS	Defense Accounting and Finance Service center
DOD	Department of Defense
DOD/IG	Department of Defense, Office of the Inspector General
EPC	European Purchasing Countries
EPAF	European Air Forces
EPG	European Participating Governments
EPI	European Participating Industry
FAR	Federal Acquisition Regulation
FMR	Financial Management Regulation
FMS	Foreign Military Sales
FPRA	Forward Pricing Rate Agreement
FSD	Full Scale Development
G&A	General and Administrative
GAO	General Accounting Office
GD	General Dynamics
GFAE	Government Furnished Aeronautical Equipment
LMTAS	Lockheed Martin Tactical Aircraft Systems
LOA	Letter of Offer and Acceptance
LSC	Logistic Surcharge/Logistic Support Charge
MLU	Mid-Life Update
MNFP	Multinational Fighter Programs
MOD	Ministry of Defense
MOU	Memorandum of Understanding
OIG	Office of the Inspector General
PNM	Price Negotiations Memoranda
SAAC	Security Assistance Accounting Center
SAF	Secretary of the Air Force
SAI	Supreme Audit Institutions
SC	Steering Committee
SCIM	Subcommittee for Industrial Matters

SNR	Senior National Representative
SPO	System Programs Office
TA	Technical Agreement
US	United States
USAF	United States Air Force
USG	United States Government

Enclosure 2    **Audits of the F-16 program - historical material -  
reference list**

**GAO reports**

- 1996    Contract pricing; Pricing of F-16 Mid-Life Update (MLU) Programs Contracts.
- 1990    F-16 Program - Reasonably Competitive Premiums for European Coproduction

**National SAI reports**

*Denmark*

- 1995    Report to the Public Accounts Committee concerning the completion of the purchase of 58 F-16 aircraft etc.
- 1985    Report No. 4 to the Public Accounts Committee concerning the audit of the F-16 project (the Loading issue)
- 1985    Report No. 3 to the Public Accounts Committee concerning the audit of the F-16 project
- 1980    Report No. 2 to the Public Accounts Committee concerning the audit of the F-16 project
- 1978    Report to the Public Accounts Committee on the audit of the Office of the Auditor General's work concerning the audit of the F-16 project

*The Netherlands*

- 1994    Expenditures of the Ministry of Defense concerning cooperationtreaties with other countries, par 2.5
- 1993    The ministry of Defence. The F-16
- 1993    Expenditures of the Ministry of Defense concerning cooperationtreaties with other countries, par 3.9
- 1992    Expenditures of the Ministry of Defense concerning cooperationtreaties with other countries, par 2.10.5
- 1991    Expenditures of the Ministry of Defense concerning cooperationtreaties with other countries, par 2.10.4
- 1990    Expenditures of the Ministry of Defense concerning cooperationtreaties with other countries, par 3.10.6
- 1989    Expenditures of the Ministry of Defense concerning cooperationtreaties with other countries, par 3.10.4
- 1984    Expenditures of the Ministry of Defense concerning cooperationtreaties with other countries, par 5.3

- 1983 Expenditures of the Ministry of Defense concerning cooperation treaties with other countries, par 5.11
- 1980 Expenditures of the Ministry of Defense concerning cooperation treaties with other countries, par 6.15
- 1979 Expenditures of the Ministry of Defense concerning cooperation treaties with other countries, par 6.2

*Norway*

- 1989 Document No. 1 - Ministry of Defense - The procurement of 72 F-16 fighter planes
- 1982 Document No. 1 - Ministry of Defense - Audit of the F-16 program
- 1981 Document No. 1 - Ministry of Defense - The procurement of the F-16 fighter planes - interest rates
- 1981 Document No. 1 - Ministry of Defense - Industrial cooperation in the production of the F-16 fighter planes
- 1980 Document No. 1 - Ministry of Defense - Audit of the F-16 program
- 1979 Document No. 1 - Ministry of Defense - Audit of the F-16 program
- 1978 Document No. 1 - Ministry of Defense - Audit of the F-16 program

**Common SAI reports**

- 1997 Final Memorandum concerning the implementation of Technical Agreement No. 1 (TA No. 1)
- 1991 Recommendations from the SAI Conference to improve the audit arrangements for future joint programs, based in Lessons learned with respect to the initial F-16 multinational fighter program
- 1985 Common European SAI paper on the Loading issue of the F-16 program
- 1980 Report on the audit of the F-16 Contract Administration Service/European System Program office, Europe (CASEUR)'s operation costs
- 1980 Report on overall Currency Clearing House (CCH) operations, agreements and procedures concerning escalation factors, and saac procedures for payments and final settlements of the F-16 Program
- 1979 US F-16 Management and Contract Administration

**Joint SAI Conference / Defense Contract Auditor Reports**

1977 Final advisory report from the Group of Experts to Investigate Loadings

**DOD-IG reports**

1996 Pricing and Financially reconciling systems used to support the F-16 Aircraft Multinational Fighter Program Buy

1996 Contract pricing F-16 MLU

1992 Pricing and Billing of the F-16 for Foreign Military Sales Customers

1991 Contractor Recommendations for Spares provisioning of the F-16 c/d Aircraft

1989 Pricing and Billing of the F-16 Aircraft for the European Participating Governments

**DAF/AFAA reports**

1992 F-16 Logistics Support Management

1989 F-16 c/d Multiyear II Contract Management

1988 Follow-up Audit- Spares Support for the F-16 c/d Aircraft

Enclosure 3 The F-16 programs - economic figures

not-to- exceed price MOU - original buy: \$ 6,091,000  
 current actual cost as of 30.06.96: \$ 5,819,000

*3rd country recoupments to the EPG as of 30.06.96*

	total tooling	total ECPs	total dragchute	total recoupment
Belgium	\$ 28,265,000	\$ 778,000		\$ 29,044,000
Denmark	4,493,000	446,000		4,939,000
Netherlands	19,207,000	1,022,000		20,229,000
Norway	8,828,000	693,000	\$ 1,706,000	11,227,000
	\$ 60,793,000	\$ 2,939,000	\$ 1,706,000	\$ 65,439,000

*F-16 MLU*

*Engineering and manufacturing development phase (EMD)  
 and production phase CASE value ty US \$*

	EMD phase	prod. phase
Belgium	83,535,000	268,988,000
Denmark	49,991,000	266,920,000
The Netherlands	155,659,000	672,346,000
Norway	54,513,000	293,298,000