



The Voice of Industry in NATO to inform Capability Development



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FOREWORD

BY JENS STOLTENBERG, NATO SECRETARY GENERAL

For 50 years, the NATO Industrial Advisory Group (NIAG) has brought industry and the NATO Alliance together. This multinational cooperation has enabled NATO to remain at the forefront of military technology, giving us the capabilities and the interoperability that our armed forces need to keep us safe.

The challenges we face today are more complex than they have been for a generation. We need the skill, imagination and expertise of our industrial partners more than ever. Thanks to the NIAG, and the Conference of National Armaments Directors, the voice of industry is heard throughout NATO's decision making and strategic planning.

This brochure charts the history and successes of the NIAG since its creation in 1968, highlighting its strategic role within transatlantic industrial defence cooperation (TADIC). I commend it for everything it has achieved over the past 50 years, and for everything I know it will go on to achieve in the decades to come.



BY CAMILLE GRAND, ASSISTANT SECRETARY GENERAL FOR DEFENCE INVESTMENT

As we celebrate the NIAG's 50th anniversary, it is a great pleasure for me to recognize the extraordinary value this Group brings to the work of the CNAD and more broadly to NATO. Five decades ago, the NIAG was established as a far-reaching and visionary entity. Today it is fair to say that the NIAG has delivered on its mission with more than 220 studies and advice papers completed so far, as well as establishing and nurturing effective networks with a large number of NATO and external stakeholders.

The NIAG has continuously adapted to NATO needs, providing detailed technical expertise as well as high-level policy advice, covering a wide spectrum of topics from classical defence to cyber, to organizational adaptation and trans-Atlantic cooperation. The latest NATO summits reinforced the message of the importance of industry's cooperation to NATO capability development. This anniversary is the opportunity to further explore options to achieve the full potential of the NATO-Industry engagement in the current evolving security environment. As the permanent chairman of the CNAD, I count on the NIAG as a trustworthy advisor and a key enabler for NATO to steer and facilitate capability delivery. I congratulate each and every NIAG member whose unwavering dedication over the years has contributed to make it so strong, capable and effective. I wish you an even brighter future and continued success in the years ahead.



BY JOHN JANSEN, NIAG CHAIRMAN

It is a pleasure to contribute to the brochure you have in front of you. As Chairman NIAG I am particularly proud of the contributions the NIAG has been able to deliver through concerted actions by my predecessors and the overall NIAG community. I am convinced decisive differences have been made. I can only hope my contributions as Chairman will be evaluated the same way in future.

Already in 1968 National Armaments Directors were convinced that armaments cooperation needed a clear and structured interface with industry in order to receive precompetitive advice. Over time the words chosen to reflect this concept have changed. Today we are using words like triple helix, singularity, disruptive and ecosystems, however the underlying concept did not change. NIAG has adapted to the changing environment ever since its inception. We have provided advice on the , by now, well known Framework for NATO-Industry Engagement (FNIE) and just concluded, in consultations with the CNAD, new ways of working which will allow to increase even more our agility.

My personal ambition, shared by national Heads of Delegations, for NIAG is to be fully recognized as THE in-house body where inclusive, pre-competitive and consensual industrial advice can



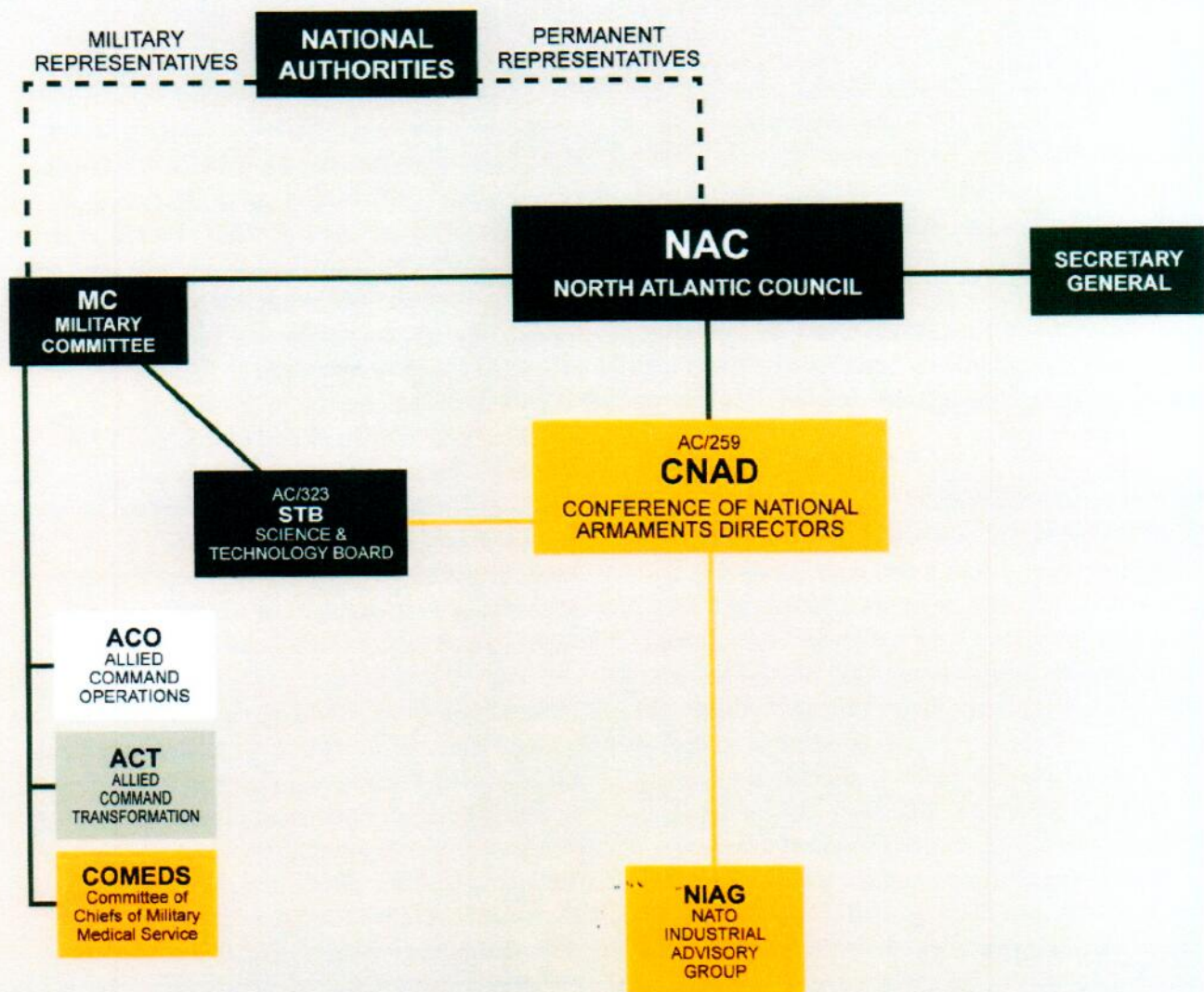
be obtained by all other NATO bodies and organizations. Basis for fruitful cooperation is a balance of interest. In some cases, given the extent of advice needed, NATO funding may be at stake. For sure we will continue such studies but our toolbox is now much more geared towards quick reaction advice.

NIAG will develop further. We will have to ensure that the influx from civil world technology like Artificial Intelligence and Autonomous systems can be offered to NATO. We also need to use modern ways of trying to encapsulate the niche technologies which are embedded in micro-, small-, medium- and mid-cap size enterprises.

In order to provide credible advice NIAG needs to be fully aware of its environment. In this respect the NATO-EU relationship has become important as never before. EU initiatives do have a bearing on the way European industries are considering the best ways towards military capabilities. At the same time, all are convinced that a strong EU contributes to a strong NATO. It is within the NIAG realm to preserve the transatlantic balanced approach being fully aware of developments on both sides of the Atlantic.

The NIAG community remains ready to support you!!!

NIAG STRUCTURE



THE NIAG CHARTER



The NIAG is a high level consultative and advisory body of senior industrialists of NATO member countries, acting under the Conference of National Armaments Directors (CNAD), with the aims of:

1. **providing a forum for an open exchange** of views on industrial, technical, economic, management and other relevant aspects of research, development and production of armaments equipment within the Alliance; based on current and updated information provided by relevant NATO bodies;
2. **providing industry's advice to the CNAD, and other NATO bodies** as appropriate, on how to foster government-to-industry and industry-to-industry armaments co-operation within the Alliance;
3. **providing optimal use of NIAG resources** to assist the Main Armaments Groups (MAGs) and their subordinate bodies, and other NATO bodies as appropriate, in **exploring opportunities for international collaboration, and seeking timely and efficient ways to satisfy NATO military capability requirements.**

ORIGINS



CONSEIL DE L'ATLANTIQUE NORD NORTH ATLANTIC COUNCIL

US
REGISTER

ORIGINAL: ENGLISH
October 1960

DATE: 10/10/60
REF: 10/10/60
10/10/60

NATO INDUSTRIAL ADVISORY GROUP

ESTABLISHED AND BASIS OF REFERENCE

Note by the Secretary

The Conference of National Armaments Directors (CNAD), which is the senior body in NATO acting under the authority of the North Atlantic Council in respect of defence equipment and associated problems, decided at its meeting in November 1967 that its efforts to improve cooperation between the NATO nations in research, development and production would be more effective if it could have the advice of defence industrialists. An European Consultative Conference of Industrialists was held at the NATO Headquarters from 15th to 17th May, 1968, in which were discussed various aspects of cooperation (1). Among the recommendations approved by the industrialists at that Conference was one for the institution of a NATO Industrial Advisory Group.

2. The CNAD at its meeting of 14th to 15th June, 1968 approved the establishment of such a group and instructed its representatives, known as the National Armaments Directors Representatives (NADR), to draw up Terms of Reference, composition and procedures for it. This was accomplished and the results were duly approved by the National Armaments Directors. These constitute the point of departure for the new Group and are attached as Annex to this document.

3. The establishment of the NATO Industrial Advisory Group (NIAG) represents a new initiative within NATO, which is expected to have far-reaching and beneficial results. At its meeting of 9th October, 1968 the North Atlantic Council endorsed in principle the establishment of the NIAG and took note of the fact that the Objectives, Composition, Terms of Reference and Procedures had previously been approved by the CNAD.

4. The NIAG is invited to take note of this present document and to examine the Annex at its first meeting.

(Signed) A. THURGOOD

OTAN/NATO,
Brussels, 30.

(1) The summary record of this meeting is to be found in AC/255(JOINT)2/1

DATE: 10/10/60

'The NATO Industrial Advisory Group (NIAG) was established in October 1968 to provide a link to the NATO nations' defence industries through which the industrial viewpoint and industrial technology development could be included in the work of NATO. NIAG was created as a Main Group under Conference of National Armaments Directors (CNAD) by the North Atlantic Council, following a recommendation of the

"Experimental Consultative Conference of Industrialists" held in May 1968. The aim was to establish a CNAD forum, composed of high-level industry representatives of the member nations, each of them acting as focal points and spokespersons for their national defence industries, and playing the role of stimulating better and more cost effective armaments cooperation in NATO.

OBJECTIVE

The NIAG Industrial Advisory Group is a bilateral consultation and advisory body of senior industrialists of NATO member countries with the aim of:

- (a) providing a forum for free exchange of views on the various industrial aspects of NATO armaments co-operation;
- (b) fostering a deeper feeling of industrial involvement in research development and production, an enabling closer co-operation amongst the industrialists of member countries;
- (c) encouraging the timely and efficient exchange of information between governments and defence industries of the various member countries.

COMPOSITION

- (a) The members of the NIAG will be industrial representatives designated by each member country. Meetings will be attended by a maximum of four industrial representatives from each country, but at least one representative from each country;
- (b) the NIAG will elect preferably from among its members its Chairman for such a period as it may decide;
- (c) the meetings of the NIAG will be attended by a co-ordinating officer, from the Defence Research Division of the International Staff, to advise and assist the Chairman and ensure continuity;
- (d) each country may designate a number of its permanent officials to attend each NIAG meeting to provide liaison and assist as needed;
- (e) representatives of other NATO bodies or forums may attend meetings as observers as may be decided;
- (f) the secretariat shall be provided by the International Staff;
- (g) all members of the NIAG and officials in its meetings must be in possession of a NATO system security clearance.

ROLE OF NIAG

The Group's Terms of Reference within the scope of its activities as outlined above shall be:

- (a) to note the information originating from the Conference of National Armaments Directors (CNAD) or its subsidiary groups,

FUNCTIONS

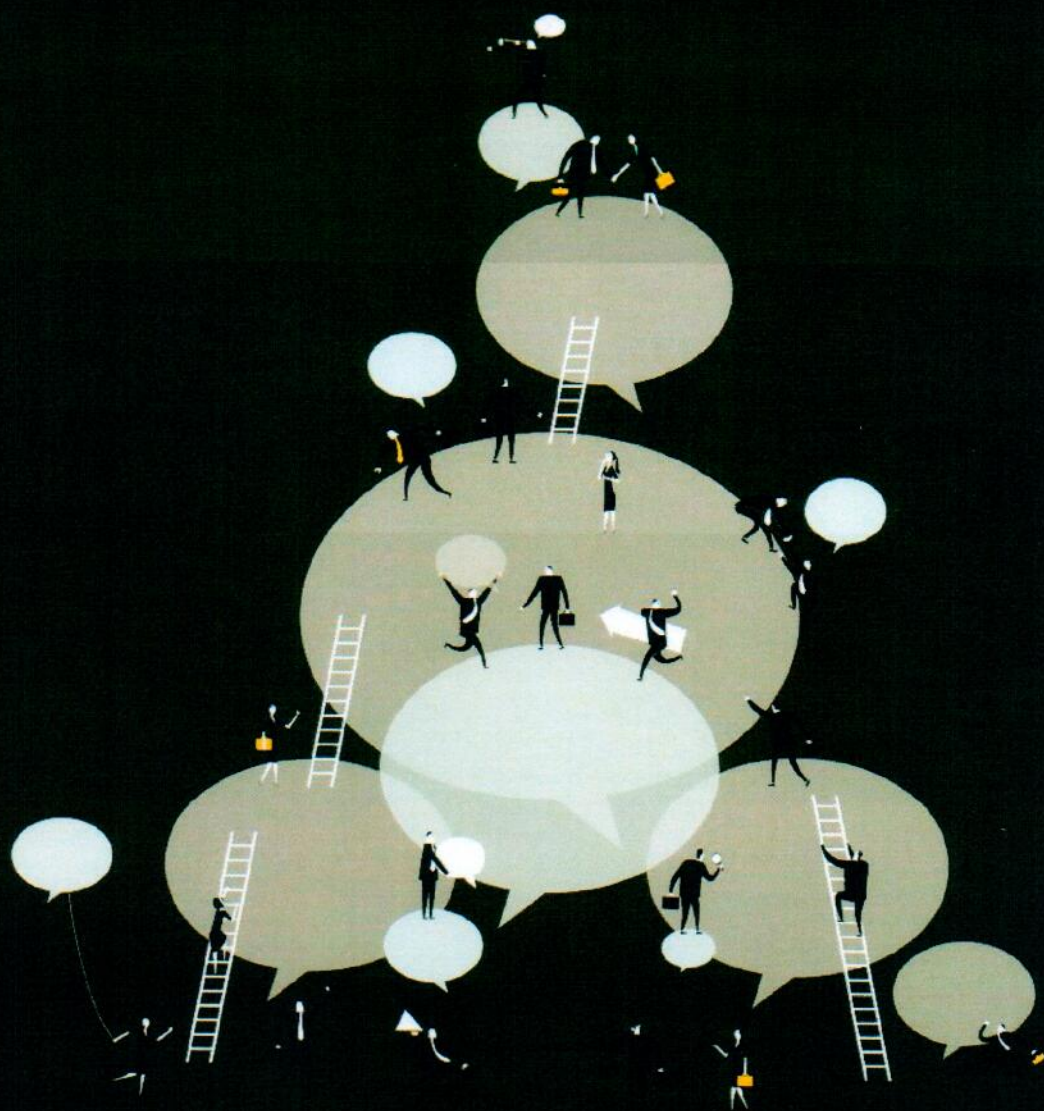
- (a) to consider and comment on NATO procedures and practices in so far as they affect industry;
- (b) to study the factors affecting research and development and technological level and develop practical proposals;
- (c) to seek out and propose solutions to problems of industrial nature which have been submitted to it, concentrating in particular on specific projects;
- (d) to make recommendations for improving the exchange of information between NATO and defence industries of member countries;
- (e) to make any other recommendation to the NIAG which it considers appropriate;
- (f) to report to the CNAD.

PROCEDURE

- (a) The NIAG shall be convened by the International Staff on the instructions of its Chairman at the request of either a member or the CNAD;
- (b) agenda for meetings shall be drawn up by the secretariat in the light of suggestions by members of the NIAG and of the CNAD, and submitted to the Chairman for approval;
- (c) the NIAG shall lay down unanimously its own rules of procedure for the conduct of its meetings.

NATO-Industry relationship

INDUSTRIES AND GOVERNMENTS ARE ULTIMATELY WORKING TOGETHER IN ALL PHASES OF ANY CAPABILITY LIFE CYCLE



NATO

Get understanding of opportunities associated with technology trends and roadmap, production timescale, business model

Get insight into potential industry partnering ...



THROUGH NIAG

INDUSTRY

Receive early visibility of capability planning and funding sources, allowing them to make strategic forward investment decisions

What is NIAG?

- NIAG is the tool of choice to engage with industry to obtain consensual view on a non-competitive basis. The members of NIAG are industrial representatives designated by each member country. Members will hold positions at a high level of responsibility in companies engaged in defence activities and/or in national defence industry federations/associations.
- NIAG represents transparency, inclusiveness and consensus from industry, and operates exclusively in the pre-competitive phase.
- NIAG allows NATO to seek industrial advice without fear or favour from all member and partner nations.
- Representatives are NATIONAL and the voice of the Industry in their nations. They do not represent the interest of any single company.
- NIAG provides a network of +/- 5000 companies, 80% of which are Small and Medium-size enterprises, to collaborate with on future capabilities.

All members of NIAG are in a privileged position in that confidential information is provided to them in connection with NIAG activities. They should therefore adhere strictly to the NIAG Moral Code¹.

¹ NIAG Moral Code: All members should take the position that confidential information provided at NIAG meetings, or in connection with NIAG activities, should not be used to obtain unfair advantages over competitors, and that information provided on the activities of certain industries in particular member countries should be treated in the strictest confidence

How does NIAG operate?

1. NIAG Plenary Meetings are held three times per year in Allied and Interoperability Platform formats.
2. NIAG engagement tools:
See page 12
3. NIAG Strategy vision
The NATO Industrial Advisory Group (NIAG) strategy will build on its strategy for 2013-2017. Changes in the political/military environment influence both the modus operandi and the need for swift consensual industrial advice. The NIAG is conscious of this and will develop its modus operandi in the following ways:
 - In support of the Conference of National Armament Directors (CNAD) and other NATO bodies, the NIAG will continue the standard study programme and develop further NIAG Industry Liaison Team with the Main Armaments Groups (MAGs) and their substructure.
 - The NIAG will continue to further its enhanced coordination with NATO's Science and Technology Organization (STO).
 - The NIAG will continue to further develop the relationship with NATO's Allied Command Transformation (ACT) and the NATO Parliamentary Assembly (NPA) Staff.
 - Current developments in defence matters in the EU demand that NIAG recognises their importance and understands how they will interact with a transatlantic perspective.
 - Increased use of e-processes will be an important additional tool as it will help NIAG outreach to micro-, small-, medium- and mid-cap size enterprises and non-traditional defence companies.
 - The NIAG will increase its credibility and raise awareness for its community with key stakeholders and audiences.

NIAG Engagement Tools

PRE-COMPETITIVE, INCLUSIVE, CONSENSUAL



NIAG studies

- High Level advice
- Technical Studies Advice

More than 225 studies conducted since 1972



NIAG Interface Groups

- Long-term sounding board
- Accelerated advice

Support the Life Cycle Management Group (LCMG) and the Alliance Future Surveillance and Control (AFSC) initiative



- Action Plans (with ACT, CNAD)
- Communities of interest (CoI)
- Letter of Intent with the NATO Parliamentary assembly
- NIAG Industry Liaison Team (NILT)

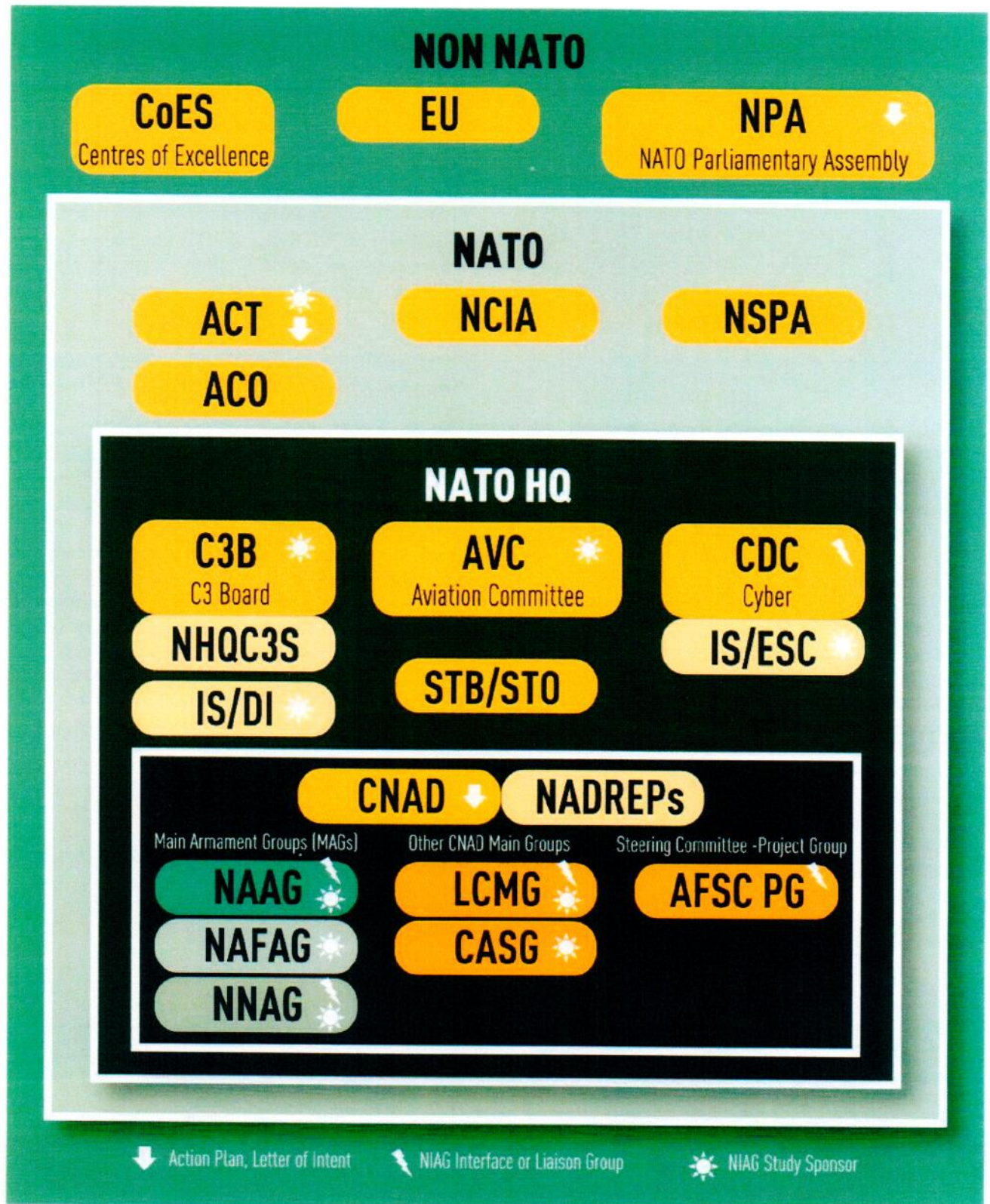
Formal relationship

Long Term advice

Short Term advice

Informal dialogue

NIAG Relationship Map



MAIN NIAG SPONSORS: MAIN ARMAMENTS GROUPS

NAFAG

MESSAGE BY CHAIRMAN, SUSAN J. THORNTON



NAFAG NIAG STUDIES

The main focus of the NAFAG is to promote multi-national cooperation by providing the fora in which to exchange information on national concepts, doctrine and Research and Development work related to armaments, weapons, systems and platform, equipment and materiel. The NAFAG fosters dialogue among nations and other key stakeholders, including subject matter experts, supporting technical and materiel standards, and promoting multi-national capability development and acquisition with a view to filling critical capability gaps. NIAG studies enable industry to engage at the pre-competitive stage, encourage creative thinking within the realms of the possible and help the development of an intelligent customer. Recent examples of NAFAG sponsored NIAG studies include a NATO Universal Armaments Interface; Exploitation of the technology used in Aircraft Self Protection systems (Defensive Aids Suites); and Modelling & Simulation.

NIAG SG-198 - NUAI

The aim of the NIAG study into the development of a NATO Universal Armaments Interface (NUAI) was to improve the ability of Alliance nations to share external stores for combat aircraft. This requires interoperability between the aircraft flight management and mission planning systems, the launcher on the aircraft and the weapon itself. The project has since been renamed the Logical Store Interface Framework (LSIF) and is also the subject of Smart Defence Initiative 1.17. Overall this

project will have a significant impact on the operational effectiveness of Alliance combat air assets, by increasing the efficient use of underwing stores available in theatre. An additional benefit should be a reduction in the stockpiling and storage requirements for the operational environment and an associated optimization of logistics re-supply.

NIAG SG-211 - NATO Defensive Aids Suites (DAS) Exploitation

Modern Defensive Aids Suites have traditionally been designed to protect the aircraft or platform to which they are fitted. These systems are now fully integrated into the modern flight management and mission systems. The increased use of network enabled capability defined the purpose SG-211 to explore the possible options to use the information of multiple DAS systems to build a wider picture of the threat environment. For example the combined input of the DAS systems employed in a 4 ship-formation provides greater protection for the formation than the individual systems could for individual aircraft. Through networked capability there are wider options for the use of remote sensor information. ACG3 has taken the recommendations from this study into DAS trials and is now in the mature stages of the development of a NATO DAS STANAG to promote interoperability to enable the exploitation of networked systems.

NIAG SG-215 - MTDS

Increasing restrictions on airspace for military training, environmental constraints (noise pollution and carbon emissions) and limitations on the availability of ranges for live firing means there is an increasing requirement for the use of virtual/synthetic environments. Modelling & Simulation can provide an environment that supports: training and mission rehearsal in a synthetic environment; the development of the interoperability and connectivity of 4th and 5th generation platforms; the exploitation of JISR data; the development of AI, Machine Learning, Deep Learning; and of course Cyber. The purpose of SG-215 was therefore to further develop the use of Mission Training through Distributed Simulation. Notably the study was extended in order to contribute to the review of the NATO Modelling & Simulation Action Plan.

NAAG

MESSAGE FROM BRIG GEN KEVIN COPSEY, CHAIRMAN OF THE NATO ARMY ARMAMENTS GROUP (NAAG)



Networking of government experts and decision makers with industry underpins the successful development and procurement of capabilities for the Alliance's forces. The NATO Committee Structure, in particular the Conference of National Armaments Directors (CNAD), has a crucial role to play to ensure and exploit this networking. In this context, the NATO Industrial Advisory Group (NIAG) provides a unique construct for the CNAD, and in a greater context, for NATO communities.

The NAAG has a long history of cooperation with the NIAG, since the time the NIAG was first established, with the NAAG Groups working together with industry, through effective and efficient processes and procedures implemented

by the NIAG. Because of this close cooperation, the NIAG and NAAG have jointly conducted around 70 studies in 50 years. It is important to note that in parallel to the demand from the NATO communities like NAAG, the throughput of the NIAG has significantly increased over the years (from an average one study for NAAG every two years before the year 2000, to the current two studies each year). Therefore, most of our joint products are recent, and maintain their currency for supporting national and multi-national programs.

The NIAG-NAAG joint achievements, like the NATO Transport Helicopter (NH-90), MLRS Systems, Precision Guided Munitions, Battlefield Management Systems, Ground-Based Air Defence, Detection of CBRN Agents, Area Access Control, and many others, led into significant gains both in cost and time reduction and in interoperability. The NAAG and NIAG continue to innovate, seeking new constructs to bring this very fruitful cooperation even further, like the conduct of test trials with industry support, and the "Industry Liaison Teams" as in the example of Next Generation Rotorcraft Capabilities, formed prior to the launch of actual studies.

With the occasion of the 50th Anniversary of the NIAG, I thank the Chairs, Members and Staff of this very distinguished community, for their tremendous support to the NATO's Land Armaments effort. I am very confident that the healthy cooperation between the NAAG and NIAG will continue and further prosper in the many years to come.

NNAG

MESSAGE BY REAR ADMIRAL JOCE BELO, CHAIRMAN OF THE NATO NAVAL ARMAMENTS GROUP (NNAG)



The NATO Naval Armaments Group within the structure of the Conference of National Armaments Directors, works towards the promotion of multinational co-operation and standardization in the area of Naval Armaments.

NNAG also seeks to create synergy among the procurement, research & technology and industrial communities. To this end, NNAG has been strengthening its interaction with the defence and security industry as well as with the commercial sector. NNAG has extensively leveraged NIAG in particular and industry more broadly with tailored engagements, symposiums, Industry days, trials, studies... to keep abreast with state-of-the-art technologies and to support the definition of statements of requirements as well as interoperability standards. This constructive and mutually beneficial interaction has fostered successful collaboration and has allowed NNAG members to improve their productive dialogue with the private sector.

Over the last 50 years, NNAG has sponsored several NIAG studies (around 80) which were instrumental to progress in key areas such as Underwater Warfare, Ship Mission Modularity and Maritime Multi-Mission Airborne capabilities.