

# STO/AVT Panel



## Briefing for Newcomers

**Andreas Schütte - AVT Executive**

## AVT Panel Mission

**“Improve performance,  
affordability,  
and safety**

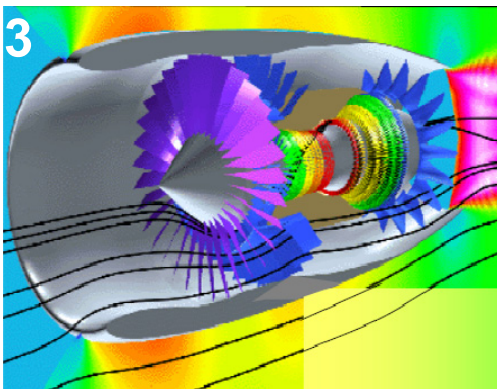
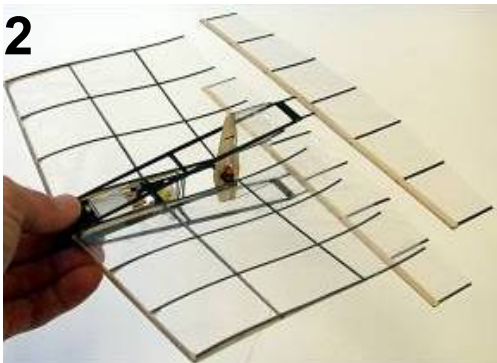
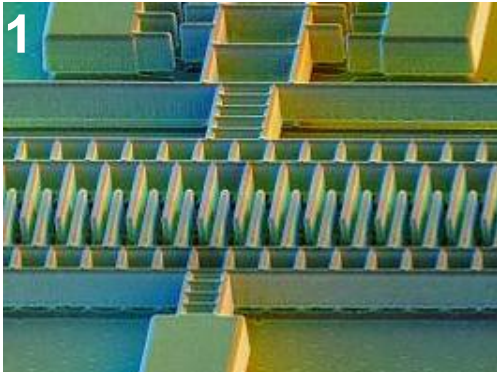
**of vehicle, platform, propulsion  
and power systems**

**operating in all environments**

**for new and ageing systems**

**through advancement  
of appropriate technologies”**





# Technology Areas

## 1 Mechanical Systems, Structures, and Materials

vehicle and platform design; structural loads and dynamics; noise and vibration control; smart and multifunctional materials and structures; structural materials and manufacturing processes; non-structural materials; corrosion, fatigue and other degradation mechanisms; affordability, availability, survivability and supportability; reliability and maintenance

## 2 Performance, Stability & Control, Fluid Physics

performance; stability and control; aerodynamic and hydrodynamic analysis and design; theoretical, experimental and computational fluid dynamics; aerothermodynamics; aero- and hydro-acoustics; aeroservoelastics

## 3 Propulsion and Power Systems

*focusing on* engineering of propulsion systems; fuels and energy conversion; fluid and gas dynamics

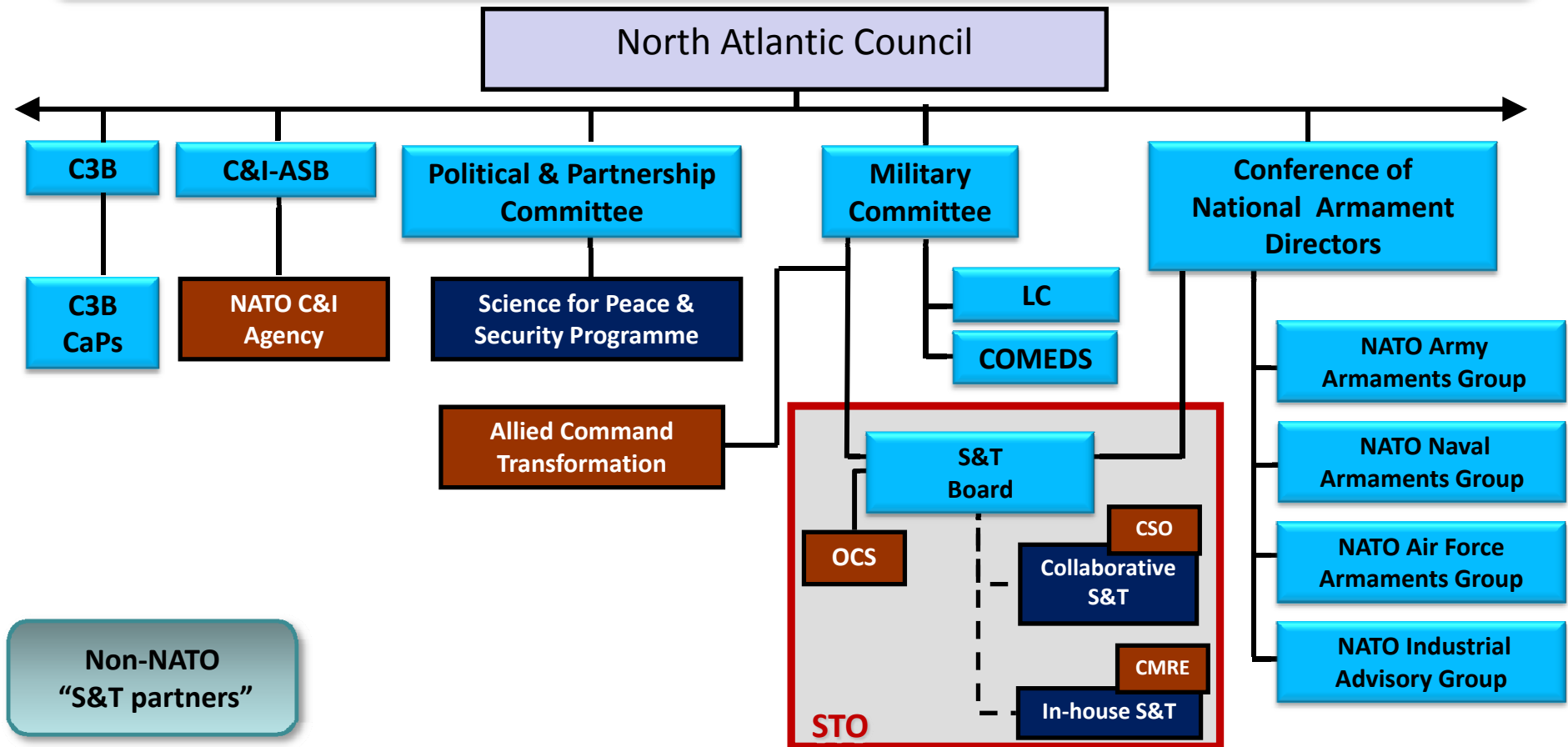
*addressing* airbreathing engines, auxiliary onboard power generation units, solid and liquid propellant rockets, electrical systems, and fire protection and suppression

# The NATO S&T Community since 1st of July 2012

*Defense & Security Objectives*

*Capability development & threat mitigation*

*Strategic & Operational Decisions*



Non-NATO  
"S&T partners"

## **NATO class. and Nations involved in STO**

### **No marking (previously UU – Unclassified Unlimited)**

- **Open to the world**

### **NATO Unclassified (NU)**

- **Only open for NATO nation nationals**

### **NATO Restricted/Confidential/Secret (NR, NC, NS)**

- **Special NATO classifications with higher lever security status**

### **Additional Partners**

### **(NATO U/R/C/S plus partner nation or group of nations)**

**PfP:** ARM, AUT, AZE, BLR, BIH, FIN, FYR, GEO, IRL, KAZ, KGZ, MLT,  
MDA, MNE, RUS, SRB, SWE, CHE , TJK, TKM, UKR, UZB

**MD:** DZA, EGY, ISR, JOR, MRT, MAR, TUN

**GLOBAL PARTNERS:** AFG, AUS, IRQ, JPN, KOR, NZL, PAK

# How to attend an AVT event

**You need to enroll on the STO Website!!!**

- Go to [www.cso.nato.int](http://www.cso.nato.int)
- Select the event and follow the instructions
- Enrollment starts approximately three month before for the Spring PBW in Jan/Febr and for the Fall PBW in Juli/August

## Upcoming STO Events



The screenshot shows the STO website interface. At the top, there are navigation tabs: Meeting Enrollments, How to Enroll, and Calls for Papers. Below these, a list of upcoming events is displayed, including:

- Symposium on "Design, Modelling, Lifting and Validation of Advanced Materials in Extreme Military Environments" (AVT-187 - 15/10/2012 to 18/10/2012 - France)
- 30th AVT Panel Business Week - Enrolment for AVT Technical Team Members and Guests to AVT Activities (AVT-30TH PBW - 15/10/2012 to 19/10/2012 - France)
- Specialists Meeting on "Advanced Lubrication Systems for Gas Turbine Engines" (AVT-188 - 16/10/2012 to 17/10/2012 - France)
- Energy Efficient Technologies and Concepts of Operation (AVT-209 - 22/10/2012 to 24/10/2012 - Portugal)
- Specialists Meeting on "Catalytic Gas Surface Interactions" (AVT-199 - 22/10/2012 to 24/10/2012 - Belgium)

A red box highlights this list, and a red arrow points to the 'How to Enroll' link in the navigation tabs.

## How to attend to an AVT activity (1)

### 1. *Participation in an existing activity*

- Find an activity on our website [www.cso.nato.int/avt](http://www.cso.nato.int/avt)
- Contact in case the AVT Executive office
- **Contact** the **Chairs** of these activities and obtain an invitation
- If the participants of the activity agree **request** the **Application for Appointment Form** (forms and contact mail address via the STO/CSO Executive Office)
- Send the **Application for Appointment** to the AVT **National Principal Panel Member** and start processing your **NATO Security Clearance** for the **CSO** (both mandatory)
- If an appointment process is pending for the first meeting you are welcome to participate as a guest

## How to attend to AVT (2)

### 1. Applying a new activity

- **Write an activity proposal** (*Templates provided by the Executive Office*)
  - TAP – Technical Activity Proposal
  - ToR – Terms of References (only for RTG and AG)
- **Submit the proposal to the AVT Executive Office and/or to one of the Technical Committee Chairs**
- **Requirement:** Relevant topic for NATO and at least four nations willing to participate
- Applications to be send annually by the **15<sup>th</sup> of August (ETs plus 15<sup>th</sup> of Febr.)**

UNCLASSIFIED : UNLIMITED		Technical Activity Proposal (TAP)	
Activity reference number	AVT-201	Activity Title	Approval
Type and serial number	RTG-065	Extended Assessment of Reliable Stability & Control Prediction Methods for NATO Air Vehicles	2011
Location(s) and Dates	In conjunction with AVT Panel Business Weeks		Start January 2012
Coordination with other bodies	NONE		End December 2014
NATO Classification of activity	NI		Non NATO Invited Yes
Publication Data	TR		NC
Keywords	Vehicle dynamics, CFD, Predictive capability, Flight dynamics, Roll and pitch damping, Flight simulation		
<b>I. Background and Justification (Relevance to NATO):</b> The ability to accurately predict both static and dynamic stability characteristics of air vehicles using computational fluid dynamics (CFD) methods could revolutionize the vehicle design process for NATO air vehicles. A validated CFD capability would significantly reduce the number of ground tests required to verify vehicle concepts and, in general, could eliminate costly vehicle "repair" campaigns required to fix performance anomalies that were not adequately predicted prior to full-scale			




## What are STOs formats

**For all activities we need at least four nations confirming their participation**

- **Task Groups (RTG) – Three years**
  - **Agardograph (AG) – Three years**
  - **Symposium (RSY)**
  - **Specialists' Meeting (RSM)**
  - **Workshops (RWS)**
- Until end of the year after the event**
- Difference: Participants,  
Call for paper procedure  
But papers are mandatory for all formats
- **Exploratory Team (ET) - one year from Fall to Fall PBM**
  - **Lecture Series (RLS) – Usually in cooperation with VKI**

## What are the functions of the AVT bodies

- 
- **AVT Panel consist of 66 experts from currently 23 of the 28 NATO nations plus Sweden**
    - Panel endorsed (RTG,RSY....) and approves (ETs) AVT activity applications
    - Each nation has a maximum of three Panel members
    - Each NATO nation has one vote (Principle Voting Member)
  - **Strategic Committee**
    - Observing the relevance of the AVT activities for NATO
    - Evaluates the overall balance of the activities
    - Provides answers for the Panel to the RTB and other NATO bodies
  - **Three Technical Committees**
    - Representing the three major subject areas
    - Evaluating the technical contents of the AVT activities



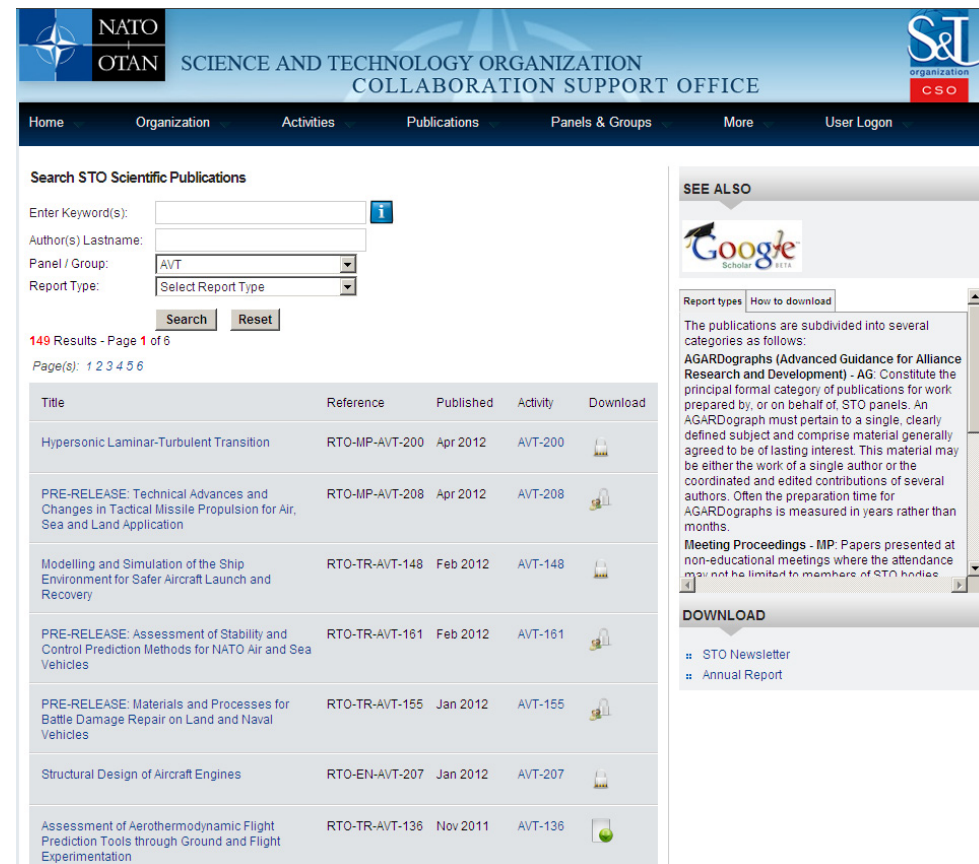
Proposal Input

## How does an activity get approved

1. **Activity application forms** will be **send** to the TCs Chairs and/or to the Executive Office **by the 15<sup>th</sup> of August (ETs plus 15<sup>th</sup> Febr.)** each year
2. Technical **review** of the activity at the **Fall PBW** by the **Technical Committees**
3. **Review** of the submitted activities **by the StC** and **presented to the AVT Panel**
4. **ETs** will be **approved directly by the AVT Panel** and **start immediately**
5. **AVT Panel endorses the activities** and **seeks approval from the RTB**
6. **RTB approves the activities** at its **Spring** meeting of the **following year**
7. **RTGs start in January** after the **Spring RTB**
8. **All others usually start immediately** after the **Spring RTB**

# Where do you find reports

- Almost all reports are located on the STO/CSO Website
- If you have an appointment
  - you will receive a user password to access the reports
  - or contact your National Distribution Center or local STO representative



The screenshot shows the STO/CSO website interface. At the top, there are logos for NATO OTAN and S&T organization, along with the text 'SCIENCE AND TECHNOLOGY ORGANIZATION COLLABORATION SUPPORT OFFICE'. Below the logos is a navigation menu with links: Home, Organization, Activities, Publications, Panels & Groups, More, and User Logon.

The main content area is titled 'Search STO Scientific Publications'. It contains a search form with the following fields:
 

- Enter Keyword(s):
- Author(s) Lastname:
- Panel / Group: (dropdown menu showing 'AVT')
- Report Type: (dropdown menu showing 'Select Report Type')

 There are 'Search' and 'Reset' buttons below the form. Below the search form, it indicates '149 Results - Page 1 of 6' and provides pagination links: 'Page(s): 1 2 3 4 5 6'.

The search results are displayed in a table with the following columns: Title, Reference, Published, Activity, and Download. The table contains several entries, including:
 

- Hypersonic Laminar-Turbulent Transition (Reference: RTO-MP-AVT-200, Published: Apr 2012, Activity: AVT-200)
- PRE-RELEASE: Technical Advances and Changes in Tactical Missile Propulsion for Air, Sea and Land Application (Reference: RTO-MP-AVT-208, Published: Apr 2012, Activity: AVT-208)
- Modelling and Simulation of the Ship Environment for Safer Aircraft Launch and Recovery (Reference: RTO-TR-AVT-148, Published: Feb 2012, Activity: AVT-148)
- PRE-RELEASE: Assessment of Stability and Control Prediction Methods for NATO Air and Sea Vehicles (Reference: RTO-TR-AVT-161, Published: Feb 2012, Activity: AVT-161)
- PRE-RELEASE: Materials and Processes for Battle Damage Repair on Land and Naval Vehicles (Reference: RTO-TR-AVT-155, Published: Jan 2012, Activity: AVT-155)
- Structural Design of Aircraft Engines (Reference: RTO-EN-AVT-207, Published: Jan 2012, Activity: AVT-207)
- Assessment of Aerothermodynamic Flight Prediction Tools through Ground and Flight Experimentation (Reference: RTO-TR-AVT-136, Published: Nov 2011, Activity: AVT-136)

On the right side of the page, there is a 'SEE ALSO' section with a Google Scholar logo and a 'Report types' section. The 'Report types' section explains that publications are subdivided into several categories:
 

- AGARDographs (Advanced Guidance for Alliance Research and Development) - AG:** Constitute the principal formal category of publications for work prepared by, or on behalf of, STO panels. An AGARDograph must pertain to a single, clearly defined subject and comprise material generally agreed to be of lasting interest. This material may be either the work of a single author or the coordinated and edited contributions of several authors. Often the preparation time for AGARDographs is measured in years rather than months.
- Meeting Proceedings - MP:** Papers presented at non-educational meetings where the attendance may not be limited to members of STO bodies.

 Below this, there is a 'DOWNLOAD' section with links for 'STO Newsletter' and 'Annual Report'.

## STO Support Program

- **The STO Support Programme is of benefit to the following Supported Nations:**  
Bulgaria, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Poland, Portugal, Romania, Slovakia, Slovenia and Turkey.
- **It includes:**
  - Support Projects (cooperative activities); and,
  - Financial support (travel expenses and per-diem) for the attendance of Panel/Group Members and experts from the Supported Nations at Panel/Group Business Meetings and Technical Team activities.
- As far as the Support Projects are concerned, the **financial support provides travel expenses and per diem** for scientists, technicians or engineers who need to travel in order to accomplish the objectives of the Support Project.
- Financial support **for purchasing hardware or software is also possible**; it is limited to **25% of the project cost**.



**29th AVT Panel Business Week, Spring 2012, San Diego, California, USA**

The AVT Panel held its Spring Panel Meeting Week 16th to 20th of April 2012 in San Diego, USA. More than 400 engineers, scientists, industry and government representatives from 23 out of 28 NATO nations plus partner nations attended the 2012 AVT Spring Panel Meeting Week.

21 May, 2012

[Read the full story](#)



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**OUR ORGANIZATION**



The Science and Technology Organization (STO) is a NATO subsidiary body having the same legal status than the NATO itself, and created within the framework of the North Atlantic Treaty signed in

Washington in 1949. It has been established with a view to meeting to the best advantage the collective needs of NATO, NATO Nations and partner Nations in the fields of Science and Technology. The STO is operated under the authority of the North Atlantic Council which has delegated the operations of the STO to a Board of Directors (the S&T Board – STB) comprising the NATO Nations S&T managers. The STB is chaired by the NATO Chief Scientist who is a high level recognized S&T leader of a NATO Nation, being permanently assigned to the NATO headquarters in Brussels and also serving as the senior scientific advisor to the NATO leadership.



[More...](#)

[www.sto.nato.int](http://www.sto.nato.int)

**NATO Chief Scientist welcomes the new Organization**



Dear All,

We would like to welcome you to your new home base, the Science and Technology Organisation (STO).

On 1 July the STO stood up, with the new NATO Chief Scientist providing unified S&T leadership; merging the forces, the skills and the expertise of the NATO Undersea Research Centre and the Research and Technology Organisation; and creating the Office of the NATO Chief Scientist in NATO Headquarters.

We also would like to thank you for all the hard work you have performed, getting the S&T community to where it is today: known for excellence and better positioned than ever to make a difference and to contribute to the Security and Defence of the Alliance.

The S&T Reform is indeed much more than a reform of structures. The reform of the structural element is a means to ensure that Science and Technology is reinforced as a cornerstone of the Security and Defence of the Alliance. To some of us this reform also means a major reform of the way we will work in the future.

Expectations are high, the Nations having tasked us very clearly to continue to deliver excellence, while paying particular attention to: the coordination of the various S&T programmes, the involvement of our customers, the visibility the accessibility and the exploitation of our work, the provision of knowledge and advice to support decision making, the best use of resources and to overall governance.



**SOCIAL MEDIA**

[STO Facebook Page](#)  
[CMRE Facebook Page](#)  
[CSO Youtube Channel](#)  
[CMRE Youtube Channel](#)

**SHARE**

**NATO RTO AVT-208 Symposium on Technical Advances and Changes in Tactical Missile Propulsion for Air, Sea and Land Applications**



The NATO RTO Symposium on "Technical Advances and Changes in Tactical Missile Propulsion for Air, Sea and Land Applications" was held during the Spring AVT Panel Business Week in San Diego from the 16<sup>th</sup> to 20<sup>th</sup> of April 2012.

« 1 2 3 4 5 »

**Upcoming STO Events**

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- Symposium on "Biological Effects of Ionizing Radiation Exposure and Countermeasures: Current Status and Future Perspectives" (HFM-223 - 08/10/2012 to 10/10/2012 - Slovenia)
- Symposium on "Information Assurance and Cyber Defense" (IST-111 - 24/09/2012 to 25/09/2012 - Germany)
- 30th IST Panel Business Meeting (IST-30PBM - 26/09/2012 to 28/09/2012 - Germany)

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**ABOUT US**



Formerly known as the RTA, the **Collaboration Support Office (CSO)** supports the Collaborative business model of the new Science and Technology Organization (STO). NATO Nations and partner Nations contribute their national resources to define, conduct and promote cooperative research and information exchange.

The total spectrum of this collaborative effort is addressed by six Technical Panels who manage a wide range of scientific research activities, a Group specialising in Modelling and Simulation, plus a Committee dedicated to supporting the Information Management needs of the organization. For more information about the STO, please visit the STO Website.



[More...](#)

**FIND US ON**



**SHARE**

[www.cso.nato.int](http://www.cso.nato.int)

## Further information on the STO



- RTO annual brochure 2011
- Background to the role of the RTO/STO
- Typically ~140 research activities active
- [www.sto.nato.int](http://www.sto.nato.int)



# Thank you for your attention

*“Scientific results cannot be used efficiently by soldiers who have no understanding of them, and scientists cannot produce results useful for warfare without an understanding of the operations.”*

**Theodore von Kármán (1881-1963)**

