

# IAF TECHNICAL COMMITTEE: *THE SPACE ECONOMY*

## SUMMARY OF DISCUSSIONS

### SECOND MEETING

PARIS, 16 MARCH, 2009 (14.00-16.00)

#### 1. ATTENDANCE

A. Cartier, K. Davidian, P. Eckert, C. Jolly (Committee Secretary), P. Lionnet, W. Peeters, N. Peter, K. Suzuki, A. Vena, P.-A. Schieb (Committee Chairman). See also in annex the list of members and interested colleagues receiving this summary of discussions.

#### 2. PRESENTATION OF THE COMMITTEE & MEMBERSHIP

Welcome address by Pierre-Alain Schieb, the Chairman followed by short introduction of the participants and agenda approval. The Chairman provided a background to the creation of this Committee and the proposed aims.

The Committee on “the Space Economy” has the mission to foster interest in the importance of building a more robust statistical knowledge-base of the space economy, in cooperation with other interested IAF Committees and IAA Commissions. The Committee is to:

- Offer a home to economists and other actors active in economic analysis of the space sector (e.g. strategy departments) to allow international discussions on measurement issues (size of sector, impacts, etc); and
- Spread good practices and lessons learned to improve international data quality to all IAF members.

The Committee welcomes members from the public and private sectors (industry and service providers), representatives of consulting firms, industry associations, professional associations, academia, industry and specialised journalists. To become a full-fledge member, their organisation needs to be in principle affiliated with IAF. The procedure is rather simple, as interested individuals on the current mailing-list can confirm by email their wish to become members. Others from non-affiliated IAF organisations are also welcome to participate actively in the work of the Committee, as interested parties. The Chairman mentioned that the position of vice-chairman is opened and the Committee would in particular welcome interested representatives from non-European countries (Americas, Asia...), as to reflect the international dimension of IAF membership. Interested people should get in touch with Pierre Alain Schieb via email ([Pierre-Alain.Schieb@oecd.org](mailto:Pierre-Alain.Schieb@oecd.org)).

#### 3. PROGRAMME OF WORK

As part of its official mandate by the IAF, several activities are carried out by the Committee. As mentioned during the meeting, there is a lot of interest from different individuals to become involved in the Committee activities. Contributions are expected to be on a *best effort* basis, and the envisaged outputs are deemed to be ‘public good’ to be used by IAF members and the space community at large. There was an agreement from participants on the advantages of going forward on several items:

**a) IAF Technical Committee meetings**

Committee meetings take place twice a year, in March during the IAF spring meetings in Paris, and in September/October, during the International Astronautical Congress. Those meetings allow interactions between members, as well a review of progress on activities. The next one will take place in Daejeon, in Korea, during the next International Astronautical Congress (October 2009).

**b) Preparation of an annual paper for the IAF/UN Report on Highlights of Space Technology on the current international statistical knowledge-base of the space economy**

Every year, a document called 'Highlights in Space' is prepared by the United Nations Office for Outer Space Affairs (UN-OOSA) in cooperation with the International Astronautical Federation (IAF), the Committee on Space Research (COSPAR) and the International Institute of Space Law (IISL). It features progress in space science, technology and applications, as well as international cooperation. In late 2008, the Technical Committee on the Space Economy was asked to contribute a small annex on the status of the space economy. A three-page document was provided to the IAF Bureau, and the whole report should be published on the OOSA website over the next few weeks (<http://www.oosa.unvienna.org/>). In late 2009, the same exercise should take place, and Committee members are welcome to participate in fleshing-out a bit more the annex. This issue will be addressed during the next meeting in October 2008.

**c) Study on the international space workforce, led by the Technical Committee members**

As part of its missions, the Committee can launch specific studies, with relevant contributions from Committee members and other invited international experts. The 'international space workforce' was proposed as a theme during the meeting and this led to lively discussions.

Even though space remains a very specific industrial sector, resembling 'artisanship' in some cases and apparently not very intensive in terms of direct employment, recent evolutions in demography (i.e. generation of baby-boomers retiring) bring forward the issue of the status and future of the international space workforce. As mentioned by Committee members, there may – or not – be a real problem for the near future, but a number of recent reports and workshops conducted on national or regional basis tends to point that the issue could become significant at least in some countries.

Leading a IAF study on that topic would be particularly interesting because of its international basis. Contrary to previous work, the focus would not be only European or North-American, mobilising interested IAF members, and pointing out national similarities and differences. As noted by Committee participants, some national characteristics of industries are indeed rarely taken into account. The concept of 'space industry' has not the same significance in a number of Western countries or Asia for example. The education systems and the organisation of industries can be so different from country to country that measuring current employment and setting up strategies for remedying potential lack of human resources (is there is even such as lack) can be very diverse.

As discussed, the contents of the study could include:

- A review of definitions and methodologies (particularly mentioning the measurement parameters that affect accuracy);
- A status of the workforce today in a large number of countries, with mention each time of their relevant education / industry systems, as to allow a better understanding of the figures and of the comparability issues;

- A prospective point of view, at least at 2015 (mostly based on current trends we already can grasp, such as demography and number of students already engaged in relevant studies), and also on a longer basis such as 2025 via scenarios, to take into account long lead times of space programmes.

Organisation of the work:

- **A critical mass of expertise is needed** to deliver in time an interesting report, therefore contributions from Committee members and other experts are welcome, and will be dully referenced. The full report should be ready for the next IAC in Prague in September 2010, and with IAF support, could become a publication.
- **Inputs can be quite diverse, and in most cases not time-consuming.** They range from mentioning and (if possible) forwarding existing reports, as to allow the development of a common reference bibliography on the space workforce topic... to writing new background papers with specific countries' profiles or measurement issues that you think are important. The development of a specific questionnaire / survey was addressed during the meeting, and will be further discussed with interested colleagues.
- In March 2010, a year from now, the next Committee meeting will be more open and publicised as the group aims to **invite representatives from human resources departments from industry and agencies**, to present to them the draft study and gather feedback.
- A dedicated intranet / blog is to be set up and devoted to the Committee work. It will serve as a depository of exchanges, workplan, bibliographies, papers, and versions of the report. Individuals interested in contributing to the study should contact ASAP Claire Jolly ([claire.jolly@oecd.org](mailto:claire.jolly@oecd.org)). They will be included in a dedicated mailing list on the 'workforce report', as to be fully kept in the loop of exchanges and will receive specific login information to access the site.

Timeline:

- March 2009: Launch of study
- Oct. 2009: Progress report during next TC meeting in Daejong
- March 2010: Committee meeting and seminar with representatives from HR Departments from industry / agencies (synergy with IAF springtime meeting)
- Sept. 2010: Report delivered and presented at the IAC

#### ***d) Setting up an international seminar on international measurement issues of the space economy in 2010***

One of the Committee mission is to discuss and promote useful methodological bases for measuring the economics of space activities. In order to address those issues, one avenue that was discussed during the meeting consisted of the organisation of workshop. A number of participants agreed that it would be a good idea to organise an event in Prague, during the next International Astronautical Congress (IAC, 2010), and would even be willing to contribute papers on methodological and measurements issues.

Based on this general agreement, cooperation was sought without delay with the IAA Commission V, which had its meeting the next day. This Commission is in charge of organising the annual *Symposium on space policy, regulations and economics* during the International Astronautical Congress. Since the start of the IAF Committee on the Space Economy, colleagues from both the IAA Commission V and from the Committee take part in each others' group, as to avoid duplication and promote active collaboration. This cooperation was exemplified that day, as the IAA Commission welcomed the idea of a dedicated session on the space economy and included it in the symposium to be held in Prague

at the IAC 2010 (20 - 24 September 2010). The draft terms of references are mentioned below (they will appear in the next IAC call of papers, when finalised). Committee members will be of course invited to submit papers for this brand new 'space economy' session.

*23RD SYMPOSIUM ON SPACE POLICY, REGULATIONS AND ECONOMICS (Sept. 2010)*

*Coordinators: Kai-Uwe Schrogl European Space Policy Institute (ESPI) — AUSTRIA*

*Sergio Camacho CRECTEALC (Regional Centre for Space Science and Technology Education for Latin American and the Caribbean) — MEXICO*

**Session E3.3: The Space Economy in Figures**

*Chairmen:*

*Pierre-Alain Schieb, OECD*

*Pierre-Lionnet, Eurospace*

*Rapporteur: TBD*

*For policy-makers, the 'space economy' has become an interesting concept covering not only the economic dimensions of the space sector, but also of its applications. What is the economic size of the international space sector? What are the socio-economic impacts of space applications? This session aims to present the state of the art in measuring the space economy. In addition to selected papers, it will include a number of invited papers by experts.*

#### 4. NEXT STEPS

The Committee was launched a few months ago and is already set to tackle quite a few interesting challenges. To summarise:

- Individuals who wish to become **full-fledge Committee members** are asked to confirm by email their intention. Their name will then appear in the official listing of the IAF Technical Committee membership. Experts from organisations not affiliated with IAF are also asked to **confirm their wish to contribute to the Committee and continue receiving emails** from the Committee and be considered as 'interested parties'.
- A dedicated intranet / private blog is to be devoted to the Committee work, particularly on the **space workforce report**, and will serve as a depository of exchanges and documents. Individuals interested in contributing to the study should contact Claire Jolly ([claire.jolly@oecd.org](mailto:claire.jolly@oecd.org)) to get access.
- The **position of vice-chairman** is opened and the Committee would in particular welcome interested individuals from non-European countries (Americas, Asia), as to reflect the international dimension of IAF membership. Interested people should get in touch with Pierre Alain Schieb via email ([Pierre-Alain.Schieb@oecd.org](mailto:Pierre-Alain.Schieb@oecd.org)).

**NEXT MEETING:** It will take place during the next IAC in Daejong, in October 2009. The exact date and location will be sent to the recipients of Committee's mailing-list.

# ANNEX

## IAF Technical Committee: The Space Economy

### List of Members & Interested Parties (Recipients of the Committee Documents)

\* Indicates Confirmed Members as of 26 March 2009

#### **Chair:**

Pierre-Alain SCHIEB, Head of Futures Projects, OECD

#### **Vice-Chairman:**

*Open position*

#### **Executive Secretary:**

Claire JOLLY, Policy Analyst, OECD

Giles ALSTON  
Oxford Analytica  
UNITED STATES

Laurent BACH  
BETA Laboratory  
Université Louis Pasteur, Strasbourg  
FRANCE

David BRANDT  
Manager, Center for Space Exploration  
Space Systems and Operations  
Lockheed Martin Washington Operations  
UNITED STATES

Steve BOCHINGER  
Euroconsult  
FRANCE

Axelle CARTIER  
Representative for the International Institute  
of Space Law (IISL) President,  
Tanja MASSON-ZWAAN  
THE NETHERLANDS

Patrick COHENDET  
Professor  
Université Louis-Pasteur (Strasbourg) / HEC  
Montréal  
FRANCE / CANADA

Simonetta CHELI\*  
Head of the Coordination Office  
Directorate of Earth Observation Programmes  
EUROPEAN SPACE AGENCY

John W. CULLEN\*  
Senior Policy Advisor  
U.S. Geological Survey  
UNITED STATES

Ken DAVIDIAN  
Program Lead for the "Encourage, Facilitate, and  
Promote" mission element  
FAA, Space Systems Development Division  
UNITED STATES

Norbert DEUTSCHER  
Senior Strategist, Strategy & Market Development,  
Astrium Space Transportation  
Chairman of the Space Industrial Markets group  
within the ASD/Eurospace  
GERMANY

Simona Di CIACCIO\*  
International Relations/Strategy Unit  
Italian Space Agency  
ITALY

Paul A. ECKERT\*  
International & Commercial Strategist,  
Space Exploration  
The Boeing Company  
UNITED STATES

Jean-Jacques FAVIER\*  
Directeur adjoint prospective et stratégie  
CNES  
FRANCE

Hugues GILBERT\*  
Director, Policy and External Relations  
Canadian Space Agency  
CANADA

Max GRIMARD  
Vice President in charge of Strategic Business  
Development Space  
Astrium  
FRANCE

Jacob GULLISH  
Futron Corp.  
UNITED STATES

Joan HARVEY\*  
Senior Economist  
Canadian Space Agency  
CANADA

Henry HERTZFELD\*  
Research Professor  
Space Policy Institute, Centre for International  
Science and Technology Policy  
George Washington University  
UNITED STATES

Bob HOPKINS  
Senior Vice President and Managing Director,  
Washington, DC office  
Phillips & Company  
UNITED STATES

Chin Young HWANG  
Director, Policy, Planning & International Relations  
Division  
Korea Aerospace Research Institute  
KOREA

Jason KAO  
Deputy Director, Div III  
Taiwan Institute of Economic Research  
TAIWAN

Paul KAMOUN  
Chairman  
European Association of Remote Sensing  
Companies (EARSC)  
FRANCE

Pierre LIONNET\*  
Head Economic Affairs and Statistics  
Eurosace  
FRANCE

Mari Eike NILSEN\*  
Higher Executive officer  
Department of Industrial Development and  
Internationalisation; Norwegian Ministry of Trade  
and Industry  
NORWAY

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Dean  
International Space University (ISU)  
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ESPI  
AUSTRIA

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