
X-IFU Governance Document – v3.0.1

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With inputs from Consortium Board Members

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X-IFU Governance Document – Revision

Revision date	Version	Changes
22/02/2015	1.0	First consolidated version sent to the X-IFU consortium board
03/03/2015	2.1	Second consolidated version sent to the X-IFU consortium board after revisions to account for comments received before and during the CoB meeting
26/03/2015	3.0	Third consolidated version sent to the X-IFU consortium board following a global revision to account for comments on version 2.1. This version is subject to approval by the CoB.
05/05/2015	3.0.1	Phil Uttley removed from the X-IFU ST list, after resigning from his position



X-IFU Governance Document – Approved by

Name	Title	Approved (signature)
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Jan-Willem den Herder (NL)	X-IFU CoPI – Dutch member of the CoB	yes
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Table of contents

1	Presentation of the document.....	4
1.1	Introduction	4
1.2	Purpose of the Document.....	4
2	X-IFU PI	5
3	X-IFU Consortium Management Team (XCMT).....	6
3.1	Remit	6
3.2	Membership.....	6
4	The X-IFU Consortium Board (CoB)	7
4.1	Remit	7
4.2	Membership.....	8
4.3	Recognition	8
5	X-IFU Co-Investigators	9
5.1	Remit	9
5.2	Membership.....	9
5.3	Recognition	10
6	The X-IFU Science Team (XST)	10
6.1	Remit	10
6.2	Membership.....	11
6.3	Recognition	12
7	X-IFU Associate Scientists	12
7.1	Remit	12
7.2	Membership.....	12
7.3	Recognition	13
8	Intellectual property.....	13
9	Appendix – X-IFU proto-consortium key role positions	13



1 Presentation of the document

1.1 Introduction

The X-IFU proto-consortium is a group of X-IFU proto-consortium members, often representing specific roles in their institutions, which aims at responding to the ESA Announcement of Opportunity for the *Athena* instruments and associated ground segment components, with a proposal to provide and operate the X-ray Integral Field Unit (X-IFU)¹.

CNES (Centre National d'Études Spatiales) will be the prime contractor for the X-IFU, meaning that it will lead the project management (under the lead of the CNES project manager), the system level activities (under the lead of the CNES instrument manager) and be responsible for the integration and testing of the instrument.

The X-IFU proto-consortium is multi-national in nature, containing members from ESA Member States and potentially international partner countries. Among the members of the X-IFU proto-consortium, some will be **X-IFU co-investigators**, and some will be **X-IFU science associates**.

The X-IFU proto-consortium is a rather large body whose **governance** contemplates a number of **organs** listed below.

- **The X-IFU PI – Didier Barret (IRAP)**
- **The X-IFU Consortium Management Team (XCMT)**
- **The X-IFU Consortium Board (CoB)**
- **The X-IFU Science Team (XST)**

1.2 Purpose of the Document

The present document defines the governance of the X-IFU proto-consortium, with special emphasis on organizational and science aspects. The proto-consortium organization has now reached a stable configuration, *so that from the date of their adoption by the X-IFU Consortium Management Team, the governance rules can be applied to the proto-consortium.*

This document will be reviewed and updated, as needed, to better define the roles and responsibilities of the various organs of the X-IFU consortium, at least in the following occasions:

¹ <http://x-ifu.irap.omp.eu>



- Upon formal selection of the instrument consortia by ESA, this body will become **the X-IFU consortium**.
- Upon approval of the Athena Science Management Plan
- Signature of the Multi-Lateral Agreements between ESA and the funding agencies of ESA MS, and international partners.

At stages 1 and 3 above, the list and specific roles of the co-PIs, co-Is, science team members and science associates will be reviewed and confirmed (or otherwise) as a function of the commitment of the various institutions and countries. This process will be conducted by the X-IFU PI, assisted by the X-IFU Consortium Management Team and with the support of the X-IFU Consortium Board.

Names and roles of key positions in the current X-IFU proto-consortium are listed in the Appendix. In particular, in accordance with the anticipated role and scale of the contribution to the X-IFU from The Netherlands and Italy, Jan-Willem den Herder from SRON and Luigi Piro from IAPS/INAF are Co-PIs of the X-IFU proto-consortium.

The X-IFU project organization, placed under the responsibility of CNES as prime contractor will be developed separately in the project management plan elaborated by CNES, in close interaction with all involved parties of the X-IFU proto-consortium. The roles and responsibilities of the CNES project manager, the CNES instrument manager, and the X-IFU instrument scientist, and the interaction between the X-IFU project management and the various organs of the X-IFU consortium will be defined in this project management plan.

2 X-IFU PI

The X-IFU PI, or Principal investigator responsibilities will be defined in accordance with the terms of the ESA instrument AO and with the Athena Science Management Plan, once approved by ESA's Science Program Committee.

Until the formal selection of the X-IFU proto-consortium by ESA, the X-IFU PI shall, among other tasks:

- **Lead all the X-IFU proto-consortium effort and be responsible for its organization, as described in this document**
- **Be the primary interface of the X-IFU proto-consortium with CNES as the X-IFU prime contractor**
- **Speak on behalf of the X-IFU proto-consortium in front of ESA, the Athena Science Study Team, and the Athena Working Groups.**



- **Keep a log on the past and present list of co-Is, X-IFU Science Team members, Associate Scientists along with their start and end dates and their assigned tasks.**

3 X-IFU Consortium Management Team (XCMT)

The X-IFU Consortium Management Team (XCMT) assists and supports the X-IFU PI in all X-IFU science related matters as well as in all proto-consortium management related aspects.

3.1 Remit

The X-IFU PI shall consult the XCMT and gain its agreement in all matters affecting the overall scientific performance of the X-IFU and in all matters concerning the organization of the proto-consortium. This includes the share of responsibilities between consortium members, any changes in the consortium organization in response to changes in programmatic boundaries in partner countries, or changes in the scope and planning of activities in partner countries. In addition, before approval by the CoB, the X-IFU PI shall consult the XCMT and gain its agreement on the adoption of the governance document, the publication policy document, the guaranteed time program and the rules by which the guaranteed time program is executed within the consortium. Finally the X-IFU PI shall consult the XCMT and gain its agreement for appointing and assigning specific tasks, or terminating the term to Co-Investigators, X-IFU science team members and Associate Scientists. On all other issues brought to the XCMT by the X-IFU PI (e.g. X-IFU proto-consortium position on the Athena Science Management Plan), agreements of the XCMT shall be achieved by consensus² of its members.

3.2 Membership

The XCMT members are:

- The X-IFU PI
- The X-IFU co-PIs

The CNES X-IFU Project Manager and the X-IFU Science Team chair will attend the XCMT meetings.

Other persons can be in attendance at the sole discretion of the X-IFU PI. The X-IFU PI chairs the XCMT.

² *Consensus means that a proposal is approved, unless one or more voting members explicitly express disagreement with the proposal being approved.*

4 The X-IFU Consortium Board (CoB)

The X-IFU Consortium Board (CoB) provides the links between the X-IFU PI and the participating institutions (and associated funding agencies) in partner countries.

4.1 Remit

CoB members shall:

- **Act as a primary contact between the X-IFU proto-consortium and her/his national funding agency, and when applicable to her/his ESA SPC delegates**
- **Represent the interests in X-IFU of the scientific and technical communities in her/his country**
- **Gain agreement from his/her funding agency when expressing opinions or voting on relevant organizational and scientific matters of the X-IFU proto-consortium**
- **Report to the CoB on the activities, organization and funding arrangements in relation to the X-IFU project in her/his country.**

The CoB shall be the forum to discuss X-IFU proto-consortium high-level organizational issues, in particular:

- Responsibilities among different institutions and/or participating countries of the X-IFU proto-consortium
- Relations with ESA, with national funding agencies or SPC delegations and with international partner agencies
- Organization and management of the X-IFU proto-consortium
- Coordination of the internal and external communication of the X-IFU proto-consortium

X-IFU CoB concurrence³ will be explicitly required for the appointment and termination of the term of X-IFU co-Investigators, Science Team members and Science Associates, as well as their associated duties.

³ *This document uses the word “concurrence” by an organ to a specific proposal in the following sense: unless a majority of the members of the organ expresses disagreement, the proposal is approved; should a majority of the members of the organ express disagreement, a new proposal will have to be brought again for concurrence. In no case the organ is entitled to make changes to the proposal.*

Proposals by the X-IFU PI on such appointments should be consulted and agreed upon with the CoB members (and possibly the funding agency) of the relevant nationalities before submission of the new appointments for concurrence.

The Athena Science Management Plan (SMP) will eventually grant the X-IFU consortium with Guaranteed Time (GT), in exchange for the provision (and operation) of the X-IFU instrument.

The definition of the GT observation program and its execution rules will be approved by the CoB, hopefully by consensus and by at least 2/3 majority, and shall comply with the following principles:

- The GT program should predominantly be comprehensive and well coordinated in nature, rather than split into national shares, in order to maximize the scientific return of the X-IFU for the entire consortium.
- All countries represented in the CoB will have participation in the GT program, in a way that is commensurate with their respective effort invested into the X-IFU.

The CoB will have to approve by consensus the X-IFU publication policy document. The publication policy for papers resulting from guaranteed time observations will be defined after the Science Management Plan is approved.

The X-IFU CoB shall be chaired by the X-IFU PI, or by someone designated to act on his behalf, following agreement within the XCMT. The X-IFU Science Team Chair may be invited to attend the X-IFU CoB meetings. Other persons (e.g. the CNES project manager) can be in attendance at the sole discretion of the X-IFU PI.

4.2 Membership

The CoB is constituted by the national points of contact of each country, where institutions or individuals are involved in the X-IFU. The relevant funding agency of each country (both ESA member states and international partners) shall confirm the appointment of current CoB member (see list in the appendix) or appoint a new member for serving in the X-IFU CoB. CoB members shall be X-IFU PI, co-PI or co-I.

4.3 Recognition

The CoB members will be listed on the X-IFU web portal, X-IFU top-level documents... as to ensure adequate visibility.



5 X-IFU Co-Investigators

Members of the X-IFU proto-consortium having specific responsibilities and significant dedication to the project can be appointed as X-IFU co-Investigators (or co-I). There will be two classes of co-Is, depending on their primary role in the proto-consortium:

- **Science co-Investigators, when the person's role and effort is primarily a scientific one**
- **Instrument co-Investigators, when the person's role and effort is primarily a technical one**

Co-Is having both a technical and scientific role shall by default have the status of Science Co-Is, unless desired otherwise.

5.1 Remit

X-IFU co-investigators will have specific responsibilities, as detailed in the appointment by the X-IFU PI following the process explained in the next section. X-IFU co-Is shall fulfill the following requirements:

- **Have a sufficient commitment/dedication on a permanent basis to specific X-IFU tasks, and/or to a key role either scientifically, technically or programmatically.**
- **Have nationally provided funding to cover her/his activities as co-I**

5.2 Membership

Co-Investigators shall be appointed by the X-IFU PI following agreement by the XCMT and concurrence by the X-IFU CoB. In some instances, consultation with the funding agency may also be required (following an internal process, such as a competitive AO) before a Co-I can be considered for appointment. A Co-I will be appointed with a specific remit or mission within the proto-consortium, according to the demands of the project. Appointments shall be for 2 years, renewable, based on the overall contribution provided in the past, present and/or expected activities in the future. Each Co-I shall send a short report to the X-IFU PI on her/his activity at the end of her/his period of appointment, together with a request for extension (when applicable). Nationality balance according to the contributions from each member state or international partner to the X-IFU shall be pursued. The proto-consortium will strive to achieve a gender-balanced distribution among the co-Is.

The number of X-IFU co-Is at any given time is expected to be around 100.

The term of any co-I can terminate at her/his own request at any stage, by writing to the X-IFU PI. Upon approval of the XCMT and concurrence of the X-IFU CoB, the term of any co-I can be terminated by the X-IFU PI, provided there are good reasons for it (e.g., seriously risking the X-IFU



project, repeatedly not complying with the rules, etc.). Under any such circumstances, the X-IFU PI will try to allocate the responsibilities of the outgoing co-I to other co-Is or appoint a new one.

5.3 Recognition

The X-IFU co-Is will be listed on the X-IFU web portal, X-IFU top-level documents..., as to ensure adequate visibility.

X-IFU scientific co-Is shall be entitled to:

- Public recognition in the X-IFU instrument proposal and similar documents, X-IFU web portal, etc.
- Being consulted on the instrument proposal and potential evolution of the instrument
- Being invited to participate in the definition, execution, exploitation and publication of the science program using GTO time in accordance with the rules defined by the CoB to execute the guaranteed time observing program.

X-IFU instrument co-Is shall be entitled to:

- Public recognition in the X-IFU instrument proposal and similar documents, X-IFU web portal, etc.
- Being consulted on the instrument proposal and potential evolution of the instrument
- Be part of the publications reporting the design, construction and performance of the X-IFU instrument itself.

The title of Instrument co-I shall be given to personnel who have provided or provides an outstanding contribution to the instrument development, while not being strongly involved in the definition, execution, exploitation and publication of the science program using the guaranteed time that will be granted to the X-IFU consortium.

The publication policy should allow X-IFU instrument Co-Is to co-author a fair fraction of the scientific papers resulting from guaranteed time observations. As for every X-IFU consortium paper, the author list will be defined according to the rules of the X-IFU consortium publication policy.

6 The X-IFU Science Team (XST)

The X-IFU Science Team (henceforth XST) advises and supports the X-IFU PI on all scientific matters relevant to the instrument and its development.

6.1 Remit

The XST members shall collectively, under the coordination of the XST Chair:

- **Assess the impact on science capabilities of the X-IFU upon potential changes of performance parameters**
- **Assist the X-IFU instrument scientist and X-IFU instrument manager in translating the X-IFU related *Athena* science requirements into X-IFU performance parameters**
- **Help in defining X-IFU related tasks for the Athena Working Groups and for evaluating the outputs of these tasks**
- **Help optimizing the science return of the X-IFU, e.g. providing inputs to the definition of the guaranteed time observing program**
- **Trigger and promote the X-IFU science internally and externally**
- **Conduct any other science-related actions requested by the X-IFU PI**

6.2 Membership

The XST shall be composed by scientists from the community and reflect approximate balances between countries contributing to the instrument and science areas targeted by the X-IFU. The X-IFU proto-consortium will strive to achieve a gender-balanced composition of the XST. No more than 25 members, including international partners, shall compose the XST.

XST members shall be appointed by the X-IFU PI, following agreement by the XCMT and concurrence by the X-IFU CoB. In some instances, consultation with the funding agency may also be required (following an internal process, such as a competitive AO), before a XST member can be considered for appointment. Appointments shall be for a fixed period of time (2 to 4 years), depending on the phasing of the project, and may be renewed. Each XST members shall send a short report to the X-IFU PI and to the XST Chair on her/his activity at the end of her/his period of service, together with a request for extension. It is foreseen that the XST membership will go through a staggered renewal process, where up to 1/3 of its membership may be renewed each time.

An XST chair shall be appointed by the X-IFU PI, following agreement by the XCMT and concurrence by the X-IFU CoB, and for the same period (also renewable).

- The XST chair shall be in attendance in the XCMT meetings and the X-IFU CoB meetings. (S)he shall advise the XIFU PI on potential new XST membership.
- The XST chair shall call for XST meetings, lead the discussions and report to the X-IFU proto-consortium on these activities as needed.
- At the proposal of the XST chair, the X-IFU PI can appoint an XST vice-chair. The XST Vice-chair will assist the XST chair in all XST proceedings and replace her/him when needed.

The term of any XST member can terminate at her/his own request at any stage, by simply writing to the X-IFU PI and copied to the XST chair. Upon agreement by the XCMT and concurrence of the X-IFU



CoB, the term of any XST member can be terminated by the X-IFU PI, provided there are good reasons for it (e.g., seriously risking the X-IFU project, repeatedly not complying with the rules, etc.).

6.3 Recognition

The XST members will be listed on the X-IFU web portal, in X-IFU top level documents, and in other appropriate documents, in order to ensure adequate visibility.

XST members shall identify themselves as such when delivering X-IFU-related presentations or publications. They shall notify the XST chair of such presentations.

Speaking on behalf of the X-IFU proto-consortium needs prior authorization by the X-IFU PI.

X-IFU science co-investigators can be appointed as XST members.

XST members providing significant added value in a systematic way could be invited by the X-IFU PI to become X-IFU associate scientist or science co-Investigators.

XST members may be invited to join the guaranteed time observing program in their field of expertise in accordance with the rules defined by the CoB to execute the guaranteed time observing program.

7 X-IFU Associate Scientists

7.1 Remit

To assist in the various tasks of the XST, when expertise outside the one covered by the science co-investigators of the XST is required, the X-IFU PI may appoint *X-IFU Associate Scientists* on a temporary basis. It is thus expected that the number of X-IFU associate scientists will be limited.

7.2 Membership

Appointing Associate Scientists requires agreement by the XCMT and concurrence from the X-IFU CoB.

Approximate balances between X-IFU needs and skills of Associate Scientists shall be kept. Likewise, approximate (but not strict) nationality balance shall be pursued. The X-IFU proto-consortium will strive to achieve a gender-balanced composition among its Associate Scientists.

Appointments shall be for 2 years (renewable). Each Associate Scientist shall send a short report to the X-IFU PI and to the XST Chair on her/his activity at the end of her/his 2-year term of service, eventually together with a request for extension. Extension will also need approval by the XCMT and concurrence from the X-IFU CoB.



7.3 Recognition

The X-IFU associate scientists will be listed on the X-IFU web portal, in X-IFU top level documents, and in other appropriate documents, in order to ensure adequate visibility.

Associate scientists providing significant added value in a systematic way could be invited to become science co-Investigators by the X-IFU PI.

Associate scientists may be invited to join the guaranteed time observing program in their field of expertise in accordance with the rules defined by the CoB to execute the guaranteed time observing program.

8 Intellectual property

Subject to strict compliance with the foreseen inter-agency agreements, the following rules apply to all X-IFU proto-consortium members:

- Intellectual property of all material produced within the X-IFU proto-consortium remains with its authors. In particular material, which does not make use of classified data within the X-IFU proto-consortium can be freely publicized by its authors.
- Any publication on behalf of the X-IFU proto-consortium needs explicit authorization from the X-IFU PI
- The X-IFU PI shall be informed about publications/presentations reporting on activities related to the development of the X-IFU
- X-IFU proto-consortium members are obliged to deliver all relevant material produced within the remit of their assigned activities (minutes, technical notes, presentations, other documents) in good faith to the X-IFU proto-consortium for its best use as part of the project. This material can be freely accessed and used within the X-IFU proto-consortium for only such purpose.
- Using X-IFU proto-consortium material by any instances of the *Athena* project through the X-IFU PI (including the Athena ESA project office, the Athena Science Study Team, or its working groups) is explicitly allowed, provided that the corresponding material is properly referenced and its authorship acknowledged.

9 Appendix – X-IFU proto-consortium key role positions

- **X-IFU PI & Principal Investigator (PI):** Didier Barret, IRAP, Toulouse (F)
- **X-IFU co-PIs:** Jan-Willem den Herder, SRON, Utrecht (NL) & Luigi Piro, INAF/IAPS, Rome (IT)
- **X-IFU Science Team Chair:** Xavier Barcons, IFCA (CSIC-UC), Santander (E)
- **X-IFU Science Team Vice Chair:** Etienne Pointecouteau, IRAP, Toulouse (F)



- **CNES X-IFU Project Manager:** Thierry Carlier, CNES, Toulouse (FR)
- **X-IFU Consortium Board:** D. Barret (Chair, FR), Th. Carlier (CNES, FR, in attendance), J.W. den Herder (NL), L. Piro (IT), X. Barcons (ES, in attendance), M. Mas-Hesse (ES), J. Huovelin (FI), R. Kelley (US), M. Page (UK), K. Mitsuda (JP), S. Paltani (CH), G. Rauw (BE), A. Rozanska (PL), J. Wilms (DE).
- **X-IFU Science Team:** X. Barcons (Chair, E), G. Branduardi-Raymont (GB), M. Dadina (IT), A. Decourchelle (FR), A. Finoguenov (FI), A. Goldwurm (FR), P. Jonker (NL), A. Janiuk (PL), Y. Nazé (BE), F. Nicastro (IT), S. Paltani (CH), E. Pointecouteau (Vice-Chair, FR), D. Porquet (FR), G. Pratt (FR), J. Schaye (NL), S. Sciortino (IT), J.M. Torrejon (ES), J. Wilms (DE).
- **X-IFU instrument manager:** Olivier Puig (CNES, FR)
- **X-IFU instrument scientist:** François Pajot (IRAP, FR)

