SKA: Policy environment – present and future

Simon Berry SKA Organisation
18th May 2016
Current SKA Organisation structure

**Global design effort organised in consortia. Supported by:**
- Local funding (total ~€170M)

**SKA Office supported by:**
- a joining fee (€1M) and
- cash ‘subscription’
**SKA Organisation Ltd**

**UK company structure**

**SKA Observatory IGO**

**Design Phase**

2016

**Construction Phase**

Exploring the Universe with the world’s largest radio telescope
Exploring the Universe with the world's largest radio telescope
A new organisation structure for SKA

- SKA has a uniquely global membership in astronomy:
  - Requires a suitable (and distinct) organisation
  - Strength of commitment needed by investing governments
  - IGO structure provides level of independence commensurate with scale and complexity of project
  - Independence of staff and representatives
  - Enables policies necessary for management of risk and provision of aims in project, in:
    • Financial arrangements;
    • Procurement; and
    • Intellectual property
Three negotiation meetings so far: Rome
- Presidency – Italian Ministry of Foreign Affairs
- Nine negotiating parties from current SKAO
- One ‘observer’ party – Canada
- No formal status for others: Spain formalizing relationship to be observer?

Recent meetings:
- Kick off October 2015
- January & April 2016
- At least one more plenary...
- September 2016 final?
- ‘Signing’ some time after?
Internal documents for the IGO: largely internally developed, focused on day-to-day operations.

Background policy documents (developed through Board, StratCom and others) – needed by the IGO negotiation process as background to enable agreement of top-level documents.

Tier 1
- Treaty (Convention)
- Privileges and Immunities Agreement
- Financial Protocol
- Hosting Agreements x 3

Tier 2
- Procurement policy
- Access policies
- IPR policy
- ...etc...

Tier 3
- Staff procedures rules and regulations
- Operational rules on procurement etc
- Purchasing and financial regulations
- Council rules of procedure etc.

Founding documents for the future IGO – need Parliaments to approve and ‘ratify’
Convenon negotiation

• Overall purpose of SKA Observatory
  • Covers entire duration of SKA
  • But financial arrangements not open-ended

• Membership:
  • Who can join or work with the future Observatory organisation
  • Members and Associate members: what they represent?

• Decision-making in project – weighted voting etc

• Managing the phased nature of SKA in the Convention and membership

• Describing the project and what the convention relates to – Technical Annex

• Joining and withdrawal rules, winding up process

Convenon establishing the Square Kilometre Array Observatory

The Parties to this Convenon,

DESIRING to deliver one of the most visionary and ambitious science projects of the 21st century involving significant international cooperation;

COMMITTED to testing the limits of engineering and scientific endeavour and to exploring fundamental questions in astronomy and physics;

NOTING that the Square Kilometre Array will be a next generation radio telescope facility that has a discovery potential far greater than any previous instrument,

RECOGNISING that the scale and ambition of the Square Kilometre Array demands a global effort with long-term investment,

EMBRACING the potential for scientific discovery to contribute to advances in technology and innovation and to deliver a broader benefit for industry and society,

DEDICATED to realizing the full ambition of the Square Kilometre Array Project

ACKNOWLEDGING the preparatory work done by the Square Kilometre Array Organisation in the establishment of the Square Kilometre Array Observatory;

HAVE AGREED as follows:

Article 1
Definitions

1 “Headquarters Country” means the State in which the Square Kilometre Array Observatory, hereinafter referred to as ‘SKAO’, global headquarters are located.

2 “Host Countries” means a State that hosts SKAO observing antenna arrays.

3 “SKA Organisation” means the SKA Kilometre Array Organisation, a company incorporated in the United Kingdom with company number 07881918 as at 14 December 2011.
Much work to be undertaken between plenary sessions in working groups:
Working group memberships taken from the plenary groups – active now

Financial Protocol working group (Lead: Tiplady, RSA)
  – **Goal**: develop core Treaty financial documents, funding schedule negotiation process, high level procedures

Privileges and Immunities working group (Lead: Baker, UK)
  – **Goal**: understand P&I requirements for project and present as draft for negotiation

Procurement and IPR working group (Lead: Jing, CN)
  – **Goal**: develop Board/StratCom work into a sufficiently detailed description of process to support core IGO negotiation → policy document

Operations and access working group (Lead: Pearce, AUS)
  – **Goal**: develop Board/StratCom work into a sufficiently detailed description of process to support core IGO negotiation → policy documents at end

All starting from existing work, principles and and draft documents at some level
Case for Investment in SKA

• Compelling and transformational science case, developing in phases through project
• Access to observatory reflects investment in project for Members
• Work ongoing to develop regional data/science structures to encourage cooperation, develop national and regional capabilities
• Procurement and IPR policies being designed to:
  • Guarantee a ‘fair work return’ for involvement
  • Maximise potential for national industry involvement but maintaining ability for institute involvement where appropriate
  • Encourage innovation throughout project through ability to exploit IP freely outside project
• Possibly unique opportunities for human capital development: inspiration/training
Financial arrangements for joining

• Being negotiated in the Convention Financial Protocol

• No formula-based funding model: negotiated process

• In this founding period (until convention is signed): negotiation taking place between the governments
  – Process starts with a measure of ‘science capacity’ for a country – based on number of professional astronomers
  – ‘Science capacity’ sets starting point for negotiation
  – For CH, starting point for discussion might be 3-5% share in project

• Joining at later time: the Observatory Council would negotiate with a new country on terms – starting point again likely to be science capacity
Developing picture on procurement

- Policy assigns responsibility for specification setting and who has responsibility for procurement:
  - Starting from Cost Book
  - Development of ‘Procurement plans’ for phases
  - Possible approaches for pre-qualification

- Introduces the principle that eventual procurement can take various forms:
  - Competition important, but also....
  - Directed/restricted advertisement of opportunities
  - Importance of strategic relationships where appropriate
  - Together, tools to permit ‘fair work return’
Procurement and contracting structures

Central procurement by SKA Observatory
- Funded through cash tender activity
- Competitive processes but tailored to enable ‘fair work return’ to Members
- Desire to ensure broadest possible industry sector involvement
- Detailed processes being discussed at present

In-Kind procurement through Member
- Locally-funded activities
- Activities carry a value to the project, cost borne by the contributor
- SKAO determines detailed specifications and manages with close supervision
- Potential for international consortia working together
• Significant preparatory work – now to September

• Assume IGO4 in September
  • Signing convention and other documents Q4 2016
  • Relies on range of inputs, including financial negotiations
  • Link with project costing information etc....

• Ratification process starts early 2017

• IGO legally active when 5th ratification is complete
  • After that point: Organisation becomes operational and Council approves SKA1
Timing options for joining SKA Observatory

2016
- CH joins SKAO as Full Member soon
- CH joins SKAO later or signs Convention >2017
- CH negotiates to join SKA IGO >2018

2017
- Involvement in design, determining IGO policies and detailed planning

2018
- 01/01/2018 Min. ratification complete
- 23/07/2018 ‘Full’ membership?
- SKA Organisation
- Ratification

2019
- SKA IGO

2020
- SKA-IGO Formation
- CH is contributing member for construction, but influence on process and resulting return is much less
- Less influence on IGO policies and planning, but still potentially a founding IGO member
Organisation membership summary

• Current organisation – to 2017-2018:
  - **Members** (paying membership fee to Organisation: CH - €500k/yr)
    - Organisations of national scale
  - **Associate members** (‘intending to move to becoming members’)

• Future organisation (IGO) – 2018 onwards:
  - **Members** (States) contributing to construction and operations → full access/industry access rights
  - **Associate Members** (access/industry etc terms to be agreed....)
  - **Collaborating bodies** (.............much less clear.....)
Summary

• IGO negotiation process now underway – successful series of meetings: starting point for a new organisation
  – Definitions of membership and participation now and in the future very important

• Much effort going on to develop picture from current design phase activities towards construction-phase WBS and cost book

• Context for procurement (and Switzerland):
  – Opportunities now within current ‘in-kind’ environment of design phase
  – Opportunities in the future through the new organisation: construction phase
  – Note establishment of industry contact group – open for participation by CH

• Key policies being finalised:
  – ‘Membership’ of the future Organisation likely to be important to ensure access to opportunities
  – Range of participation models likely – cash/in-kind etc