

**Seventh Framework Programme: Research Infrastructures**

**Contract No. 212243**

**Preparatory Phase for the Square Kilometre Array**

**PrepSKA Workpackage 6:**

**Developing a funding model for the SKA:  
Report on Options for Private or Corporate  
Funding**

**Deliverable 6.2**

## 1 Introduction

Deliverable 6.2 relates to work undertaken within the project to examine options for possible non-traditional sources of funding for the SKA. In particular, as proposed in the initial workprogramme, activity was to investigate the scope for potential funding through the European Investment Bank (EIB).

This report discusses the outcomes of this element of work. It should be noted that in ongoing reporting to the Agencies SKA Group and PrepSKA Board, it was agreed that this programme of investigation should be de-emphasised compared with other elements of the project; as such, relatively limited effort was expended in the activity.

## 2 Background and Approach

The baseline assumption is that SKA will be funded by government resources in some form, whether by a solely cash, in-kind or mixed form of contributions. However, the unique nature of the project, in its geographical spread but also with its potentially wide-reaching non-science impact, means that it is appropriate to consider whether non-traditional forms of contribution could be envisaged.

These fall into two broad categories:

- Funding from private or corporate donors or benefactors; and
- Quasi-public sector sources of funding from whatever source (such as development resources or EIB-style funding)

Discussions within the PrepSKA Board and Agencies SKA Group advised that whilst there may well be options in the much longer term, it was premature to explore the corporate options in any significant depth. It was however noted that once a successor organisation was in place, there should be serious thought given, within the governance structure, to enabling a Business Development function which might be able to support active engagement in such resource or support-raising.

## 3 Specific discussions

However, noting the above points, as part of the investigative work, the WP6 team interviewed members of STFC staff with some experience of fund-raising for scientific programmes (staff involved in attempting to secure additional funding for a telescope instrumentation project). Their advice, and advice to SKA was as follows:

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- Employ a professional funding-raising expert with experience in public-sector and if possible, scientific project support and funding;
  - Before entering into an arrangement, be very clear on the aims of the approach and what the potential expectations might be – is this intended as an arrangement which yields a return for the funding party, or something which is simply a charitable offer with no expectation of return;
  - The governing Board has to understand what it is prepared to offer as an incentive, and what the limits might be on any arrangement; and
  - A detailed Business Plan or Prospectus is a clear requirement.

The PrepSKA team noted that in the US, accepting donations from individual or group benefactors is a standard practise in enabling a project, in cooperation with federal funding streams. Issues such as the merits and acceptability of advertising or other aspects, such as naming a facility after a benefactor are important. In the case of SKA, one could imagine both being viable, but in informal discussions, both aspects attracted concerns from SKA participants. Such issues would need careful consideration in the future in any further discussions.

A specific area of interest in SKA relates to the possibility of exploiting geographically-specific sources of funding. With growing European interest, through schemes and groups such as the 'African-European Radio Astronomy Platform' (AERAP) there may be the potential for specific mechanisms to exploit non-traditional forms of funding, through support for indirect development programmes (for example human capital development and training). However, PrepSKA has agreed that detailed exploration of such concepts must wait for the conclusion of the site selection process.

#### **4 The European Investment Bank (EIB)**

A specific area of study within the development of a funding model for SKA (primarily for the construction phase, but also conceivably for the pre-construction phase) was identified in the WP6 description of work as to examine the potential for funding by the European Investment Bank (EIB). It is important to note that these are not charitable donations of resource in the same way that the mechanisms above might be considered, but instead are 'loan' type structures such as those offered by the EIB through their Risk Sharing Finance Facility (RSFF). The RSFF is a tool jointly created by the EIB and the European Commission to provide a route for access funding for European R&D and Research Infrastructure projects.

WP6 explored the first of these options in a series of meetings with officials from the EIB. The report of the main substantive meeting between PrepSKA and EIB is shown below:

**Report from meeting at the European Investment Bank (EIB)  
London 27 March 2012**

Simon Berry (STFC)  
Simon Haynes (STFC)  
Elodie de Recy (EIB)  
Antonella Calvia-Götz (EIB)

Phase 1 was noted as a significant breakthrough in the SKA project. Is the project still worth doing if phase 2 and 3 are not completed?

- Yes, as even phase 1 would be far better than anything else currently available
  - The technical details can be looked at in more detail at possible future meetings between the EIB and SKA Organisation/STFC

The EC see the SKA as uniquely global that would allow business opportunities with both (South) Africa and Australia. There is also the potential opportunity of super-computing on a global scale. The EC also have a strong view on how the project should progress.

What would be the benefits for the successful site? What about business models for each country?

- Initially it would be the reputation and prestige of hosting the SKA, but each site are putting going for a different type of pitch.
- Australia are focusing more on the technical side aspects - broadband/internet spin offs and business opportunities.
- South Africa are concentrating on developing "Human capital" – better education for (South) Africans, Science available to the masses and money being spent in the countries helping the economies.

Would human activity in the area greatly affect the equipment? What would be the possible "radiation footprint"?

- The areas have been chosen as there is a very low human density; even mobiles that use the same frequency can affect results.
- There would be no harmful emissions as the site would be receiving not transmitting
  - What about the power lines and environmental impact?
    - There would be some impact on the environment, but regarding power, there are a couple of options available to generate the 100 megawatts and until the site selection has been made that can't be confirmed at the moment.

This would be the only project of this size on the African continent and would offer major spin offs for the EU Countries. It is possible that the sites would have their favoured business links possibly Australia linking with China/Asia and Africa linking with Europe.

As there are more than 2 EU countries involved in the project, the site selection would not be too much of an issue for the EIB.

What is the set up of the project office?

- The Legal entity/SKA Organisation is set up using a UK company structure.
- There is an interim project director and a full appointment will be made after the site selection. The Project office currently has 16 people which is expected to rise to 50/60 within the next few years.

We can see a possible weakness regarding procurement and uncertainty regarding sustainability.

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The PEP detailed that €90m is required, but with the 8 countries there is significant shortfall. For the EIB to be able to make an investment there needs to be a guarantee from the participating members that the repayments could be made in the defined framework. Equity not been taken into account.

- Workshops have taken place with all the (associate) members whereby they indicated how much resource they were willing to contribute to the project either as cash or in-kind.
- It is not possible to give full procurement responsibility to anyone country as they would have their own "interests" which may not be of benefit to the project.
- Each member has a €1m legal commitment to the project.
- University of Manchester are providing a building at (not classed as in kind) at no cost to the SKA. STFC, UoM and SKA preparing a 3 way agreement.

Will the Project Office still be in operation after the dishes have been built/sited?

- That's not clear at the moment until the governance model is in place.
  - Is it likely to be a UK subsidiary?
    - It could be a possibility or it could be "wound-up" and relocated to the host site

Why is the organisation not using the ERIC format?

- That would be acceptable to the European members but not South Africa/Australia/New Zealand/China etc, as it would be seen as a European project not a global one.
  - What about a European ERIC?
    - That could be possible but would need further discussion.

Possible UK involvement could be a Technical or administration centre.

It could be a possibility that the EU press for further involvement in the project.

As the "currently intended commitment" is €69.1m rather than the €90m stated in the PEP, this is partly due to the "tbd" for certain countries regarding pledged SPO resources. It was decided to continue with the momentum and start the process as there was a good starting point.

In addition to the current countries/agencies, it is part of STFC's remit in Go-SKA to attract other countries such as Russia, Poland or Argentina to the project.

The EIB will initially only fund 50% of the project.

The borrower would be the SKA Organisation and the guarantees would be the countries/member states (likely UK, Italy, Netherlands or Sweden).

If the governments agree guarantees, the EIB would loan €35m after the financial uncertainties have been resolved.

As "solidity improves", more money would be made available, although these would depend on policy definition and future cash flow options. There would be no loan on the basis of guarantee only.

Need to show money coming in to the project which partly would be the expected contributions from new members.

Long term operation model requires stable, government-level commitment.

If the legal structure is weak this would cause the financial structure to be weak too and would lead to wasted money. A central office would be better and more cost efficient.

- Colleagues in the SKA project are currently investigating legal structures.

If there is strong financial capability cash from the EIB will be more readily available. There are a number of other issues that need addressing: How would repayment be made and by whom? Who is ultimately

responsible? Each country also has different rules and regulations that need to be "streamlined." Legal consultancy will be offered to provide clarity.

The EIB asked about expected returns and how much the SKA was expected to make during the project lifetime.

- Intellectual property rights would be the main income
- Along with potential spin-offs
- The SKA is organised along the "blue skies" policy so income streams are not built into the model.
  - Is there a possibility to sell super-computing? Commercial usage?
    - Already have IBM and INTEL involved so a possibility

They made reference to SKA operating the same way as ESO, which was not practical as ESO is a Treaty Organisation.

It is important to ensure that there is an understanding of legal due diligence. Once this is in place it will be possible to meet again to discuss further.

**The following notes are about what needs to be in place for the loan to be offered and other points (so hope they make sense!)**

The economic life of the project

Creditor profile

Credit risk

Support from the members.

5-7 years bullet payments

EIB funding costs

Admin costs

Risk premium

Could be done as an unsecured loan.

The EIB don't "control" the money or insist it gets used for certain things. All they want is a yearly report/annual update and a record of the invoices – basically using the existing documents.

EIB process:

- Appraisal
- Send 2 days with organisation to get idea of how the company operates
- Double check eligibility rules
- Produce a report detailing payment structure
- Generate a "score"
- Secondary option from Credit Risk
- Goes to board of 8 VPs and President
- Board (Ministers of Finance)
- Draft contract - created with or without external legal advice (EIB Have own legal team)
- Propose contract on either a variable/floating/fixed rate
- Use currency relevant to project. In this case Euros.

Different governments have different policies, so the risk would be different to that of ESO. ESO is funded by (obligatory) payments of member states so can count on regular payments. The SKA needs to attain this level.

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The SKA is a 40+ year project so will eventually reach this state and create a steady income stream. Also the member states have been involved in similar projects so know what is required.

Longer the delay it is possible there may be a higher risk. Important to secure (in writing) long term commitment as the global economy can change (for the worse).

Need financial commitment from governments.

## **5 Conclusions**

The meetings with the EIB yielded several important conclusions for SKA:

- The EIB RSFF mechanism could provide an important mechanism for supporting the SKA project, primarily through balancing shortfalls in funding resulting from inconsistent commitment timelines from Members, 'smoothing the funding profile' of the construction phases of the project;
- Interaction with the EIB could be particularly relevant in the second phase of construction of SKA;
- Early engagement is important in order to ensure that the governance model being implemented for the next phase of the project may be suitable with the structure favoured by the EIB;
- In order to be considered for a lending arrangement, a structure which maximises stability and certainty, for example that of an International Organisation, or similar, will be important; in any event, security and backing from a sovereign government level will be critical.
- Serious planning towards the viability of an EIB loan can only take place in the availability of a detailed business plan for the construction phase, with clarity on the future governance and probable funding profile.