

StratCom discussion on Early Production Arrays: emerging conclusions

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Introduction

StratCom met on 28th February 2018 by videoconference to discuss the Early Production Array (EPA) programme concept. Background documentation for the discussion included the EPA briefing paper provided to the Board in January 2018, StratCom paper 27-10a from the committee's most recent meeting, and written input provided by StratCom members.

The objective of the discussion was to consider the implications of the EPA programme on areas within StratCom's remit of SKA policy, strategic and governance matters. This note reports on the outcomes of the discussion, aimed at supporting the forthcoming planning meeting on EPA planning to be held on 7-9 March, and as the basis for input to the Board meeting in April.

Context

StratCom held a preparatory discussion on the EPA concept at its Lisbon meeting in early February, noting a range of potential issues for further detailed discussion. At the later Videocon informing this note, Programme Director Joe McMullin provided an updated, detailed introduction to the concept. This included the timing and scope of the potential programme, as well as planning work underway in the SKA Office to establish quantitatively the cost and risk benefit of undertaking such an activity.

After discussion, StratCom agreed the following statements and observations on the concept, aimed to be of assistance to the next stage of planning work:

General points

As a starting point, StratCom recognised the potential benefits of the EPA programme concept as a mechanism for risk mitigation, by developing a representative system for testing ahead of moving to full construction phase of SKA-1. The risk modelling work underway in the SKA Office should be able to support presentation of a compelling case (or otherwise) to the SKA Board. Some on StratCom argued that within this work the question of timing should be challenged strongly: whether a phased approach, split between SKA Organisation and SKA Observatory, should be adopted. Such an approach might have advantage in simplifying 'transition' challenges between the company and IGO eras, and also in placing the contracting of activities fully within the IGO era.

Clarity is needed on establishing the governing process for approval of any EPA programme. Unambiguous advice is needed on whether the SKA Organisation's statutes permit initiation of an EPA programme as they currently stand, or whether (as indicated in preliminary investigation) amendment of the Members Agreement/Articles of Association would be needed to allow progress.

Scope of participation in the EPA programme

StratCom noted that the upcoming planning workshop was open to attendees from prospective members of the SKA Organisation (and IGO) in addition to existing SKA Organisation Members. Preparatory discussions on the programmatic scope of the EPA programme concept also suggested the potential for participation beyond the current membership. The consensus view from StratCom was that broadening participation beyond the current Organisation membership had several

benefits, for example in increasing available resources to the programme and in supporting and perhaps expediting the national cases for SKAO/IGO Membership by prospective new countries. However, there may need to be some differentiation on the potential 'benefits' from participation. For example, only those 'prospective members' who are able to provide evidence of a bona fide intent of commitment to the SKAO and later SKA Observatory should be able to secure a guarantee of resulting benefit in any EPA agreements, such as the planned 'construction credit' for their contribution. All involved should acknowledge the risk that until the Observatory and its Council exists, they would participate 'at risk' in the programme, with no absolute guarantee of 'credit'. A further risk probably sits with the project where an EPA contributor never ultimately commits to SKA-1 construction, even with the statement of intent having been provided. For some it was clear that an explicit link was needed between the commitment in the longer term SKA-1 programme (and indeed work share) and the EPA programme, and the longer term SKA-1 programme.

Budget and financial aspects

Clarity on the cost, or 'value' of the EPA programme is essential, through an appropriate Cost Book being available (perhaps aligning an EPA Cost Book with the SKA-1 Cost Book). StratCom noted that for some SKAO Members, budgetary planning for EPA would be linked completely to later SKA-1 construction resourcing, while for others an EPA programme would be treated as being an extended period of pre-construction; both potentially challenging to achieve. All of these aspects would need to be considered in the overall proposal being put to the Board.

It was further noted that the nett resourcing picture would include both national resources (based on the assumption that the majority, if not all, activity would be 'in-kind') and potentially additional resources for the SKA Office. Both elements should be visible in the planning.

Legal aspects

In addition to ensuring an appropriate mechanism for approving such an EPA programme is identified, a framework of agreements will be needed to ensure that the relationship with the hosting countries is clear (here, StratCom noted that the question of ownership of infrastructure will need to be addressed, in addition to the liabilities associated with 'early construction' activities before the Observatory is established).

Agreements will likely be needed to describe the interaction between activities commissioned 'by the SKA Organisation' with liabilities extending into the SKA Observatory era. Given the concept of credit being given in the Observatory era for EPA contributions, StratCom agreed that an understanding of how the (now finalised) Convention founding documents would treat the EPA programme was essential. It seemed likely that the CPTF would need to be involved in such discussions, again in order to ensure that liabilities from the current period are appropriately acknowledged in the Observatory era. Specifically, the impact on the Funding Schedule negotiations (which is essentially the practical realisation of any 'construction credit' discussion) would need to be considered.

Procurement issues

StratCom noted that the EPA programme planning activity underway suggested a facilitated process which would engage a range of industry and institute partners, rather than a competitive procurement process.

StratCom's view was clear: it was illogical to imagine that industry engagement, or even the broad national participation arrangements, would be able to change significantly in the move to the full

SKA-1 procurement period. Indeed, if the aim of the EPA programme is to involve industry in development of a representative system through a limited deployment, two things were clear:

- It might be challenging to engage with industry partners for EPA with no realistic prospect of a more significant later involvement, given that in the EPA era, they will have been subject to the period of greatest risk in involvement. Even if there were a move to a completely competitive process at the end of EPA, the advantage already present for those involved in EPA would surely render the move redundant. 'Re-doing' industrialisation work with a new partner would surely increase overall cost of SKA-1.
- In programme management terms, there might be considerable advantage in arranging involvement to allow a phased industry involvement and associated contractual arrangement. However, this also argued against the prospect of allowing an 'opening' of competition after the EPA programme.

StratCom acknowledged the challenge of the procurement issues, and that the direction of travel potentially changed the top-level message on procurement in the project. The impacts of this should be part of the overall discussion, in addition to careful study of the impacts of EPA on the already-agreed Procurement Principles for the Observatory.