



SKA Organisation

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Notes from the Chair of the SKA Board

30th Meeting of the Board of Directors of SKA Organisation held at SKA HQ, Jodrell Bank, UK. 10-11 July 2019

Catherine Cesarsky, Chair of the Board, welcomed directors and invited guests to the 30th Meeting of the Board of Directors of SKA Organisation.

This Board noted that Spain's Ministry of Science, Innovation and Universities applied to upgrade from Associate Member to Special Member of SKA Organisation on 11 July 2019. An upgrade to Special Membership status provides a member with greater access to the Company's decision-making processes as it prepares to take on a greater role in the SKA project following establishment of the SKA Observatory in 2020.

During the Board meeting, a dedication ceremony was held in honour of Prof. Giovanni Bignami (1944-2017), former Chair of the SKA Board of Directors. At the ceremony, his widow, Dr Patrizia Caraveo, named the 160-seat auditorium at the SKA Headquarters 'The Giovanni Fabrizio Bignami Council Chamber'.

This Board meeting was held in conjunction with the opening ceremony for the SKA Headquarters, following a £16.5M extension to the building funded by the UK Government, Cheshire East Council and The University of Manchester. Further information about this event is available on the SKA website [here](#).

Director-General's Report

Philip Diamond reported on project Health, Safety and Environmental (HSE). Since the last Board meeting, there have been no significant reportable accidents or incidents recorded at SKA HQ. In terms of project safety, the Project Safety Management Plan (Rev 2) was issued on 29 March 2019. Formal reviews of Health, Safety and Environmental issues at System level continue.

On the Human Resources (HR) front, the SKA Headquarters continues to grow rapidly; over the past 12 months, 34 roles have been advertised, which have attracted applications from 998 candidates. During May 2019, the HR module of our new Enterprise Resource Planning (ERP) system was launched to assist with the current volume of recruitment activity. Full implementation of the ERP system, including HR, Finance, Procurement and Project Management modules will take place over the next 18 months in preparation for the establishment of the SKA Observatory.

SKA Organisation will participate in the first IAU Symposium on Astronomy for Equity, Diversity and Inclusion (12-15 November 2019, Tokyo, Japan). We continue to develop an inclusive international culture in the Company, with 16 different nationalities represented amongst our 90 staff. Over the past year, just under 60% of all new staff appointed have been female; however, further work is needed to encourage more applications from female candidates for science and engineering roles.

The Board was updated about key strategic challenges facing the project from the development of constellations of low Earth orbit satellites, such as Starlink and OneWeb (global high-speed internet systems), and Iridium (global voice and data coverage to satellite phones). For example,



SpaceX intends to deploy nearly 12,000 satellites in three orbital shells by the mid-2020s; 60 have been launched to date.

SKA Organisation is a Sector Member of the International Telecommunication Union (ITU) and, through the ITU, will work with satellite companies to minimise the effects of satellite transmissions on the SKA telescopes. The SKA statement on satellite constellations can be read [here](#).

There will be an opportunity for the SKA community to engage with advanced plans for the design, commissioning and operations of the SKA and the SKA Regional Centres at the 2019 SKA Shanghai Meeting on 25-28 November 2019; the meeting website at which attendees can register can be found [here](#). This meeting is hosted and generously supported by the Ministry of Science and Technology of China and the Shanghai Observatory.

Science

Robert Braun, Director of Science, reported on the activities of the Science Team since the last Board meeting. Around 290 participants attended the SKA General Science Meeting and Key Science Workshop on 8-12 April 2019, which was held at Alderley Park, near SKA HQ.

The Board was informed that the SKA's first science data challenge has been completed. Nine teams representing 12 institutions from 8 countries took part in the challenge. They were invited to analyse a series of high-resolution images of the radio sky created through data simulations, and use software of their choosing to find, identify and classify the sources. The outcomes of the SKA's first science data challenge can be read on the SKA website [here](#).

In future, SKA science data challenges will be released regularly, representing different SKA observing modes and different SKA science cases. Ultimately, it is intended to make 'end to end' simulations by combining science data challenges with Signal Data Processor and SKA Regional Centre challenges.

Construction Planning

Joseph McMullin, Programme Director, confirmed that the pre-construction mission is to deliver the Construction Proposal and Operations Plan. The Construction Proposal will provide a summary of the scope, budget and schedule for the SKA-1 Deployment Baseline along with the management processes necessary for its successful implementation; it will be supported by numerous other documents, such as a detailed Project Execution Plan, and the underlying detailed design information. The Operations Plan will include details of the SKA Observatory's structure and operations, including science and engineering operations, science data products and Key Performance Indicators.

Adoption Design Review (ADR) meetings will be held at SKA HQ on 15-19 July and 29 July - 2 August 2019. At the initial meetings, an engineering review of the system design will be undertaken, followed by further meetings to review the design in terms of expected use cases. ADR will establish a complete set of documents representing the requirements, design, internal interfaces, lower level requirements and all plans.

Publication of System Critical Design Review (CDR) documentation is scheduled for mid-October 2019, with the System CDR meeting taking place on 9-12 December 2019 and close out of actions arising by end-March 2020. Dr McMullin acknowledged that this is a challenging timeline but it will help project stakeholders to focus on essential and critical items in order to be ready for submission of the Construction Proposal to the first SKA Observatory Council meeting planned for June 2020.



Dr McMullin noted that the current Deployment Baseline was defined in July 2017, i.e. before completion of any Element CDRs. The next revision of the Deployment Baseline will commence in September 2019, following completion of the System Design Baseline. It was noted that the Design Baseline represents SKA1, with the Deployment Baseline representing a phased approach to achieve it whilst adhering to the construction cost cap of €691M (2017 Euros). Work continues to ensure that the requisite funding will be available.

Engineering

SEAC

Adrian Russell (ESO) presented a report of the Science and Engineering Committee (SEAC) meeting held at SKA HQ on 24-25 June 2019. At this meeting, the Committee discussed project status, SKA Regional Centres, System CDR, SKA1-Low, Operations Plan, and CDR meetings reports from SEAC observers. Dr Russell presented a number of recommendations on behalf of the SEAC. Prof. Diamond presented the SKA Office's response to these recommendations.

Following the appointment of Kristine Spekkens to the Board, the Board approved her replacement by Ingrid Stairs, professor in physics and astronomy at the University of British Columbia. Prof. Stairs will bring specialist expertise in pulsars to the SEAC.

Engineering Report

Dr McMullin presented updates on system design and project planning, element CDR and prototyping, Bridging (tasks and MOUs), with additional details on the Low Bridging prototyping efforts and status of power supply information for the observatory.

The SDP Consortium successfully closed out actions arising from the SDP Element CDR on 2 May 2019. The former SDP Consortium members are now supporting the SKA bridging activities. The LFAA Consortium is expected to achieve CDR close out by the end of June 2019.

Bridging activities are progressing well and 8 Memoranda of Understanding (MoU) have been signed between SKA Organisation and bridging partners; the remainder are under review or awaiting Element CDR closeouts to be able to clarify the work required. In general, resources are engaged in bridging activities irrespective of whether MoUs have been signed or not. The Board supported the sign-off of outstanding Bridging MOUs and the resolution to IP issues in order that the SKA1 design can be completed.

The SKA Office is planning to use Lean Engineering principles for the SKA construction project, particularly the Scaled Agile Framework (SAFe®), in areas of the Work Breakdown Structure where appropriate. In order to implement these techniques, SAFe is being used for some aspects of bridging. Although we're still learning how to implement this lean approach, the delivery on targets is high and enthusiasm for the process remains high.

Work is continuing in the SKA Office, supported by colleagues in Australia and South Africa, on the development of power supply options for SKA-1. It is evident that solar photovoltaic power is now a highly competitive source of energy during the day and that battery energy storage is lower cost than diesel (and competitive with grid power in Australia). As such, significant operations saving can be achieved by procuring renewable energy instead of bulk supply options. The Board encouraged the SKA Office to continue with power supply procurement preparations, noting the long lead time and importance of this activity.



SKA-1 Cost, Schedule and Risk

Dr McMullin presented the updated SKA-1 construction cost and schedule estimates for the Design Baseline and the latest risk status, including updates from consortia that have undergone CDRs since the last Board meeting (March 2019) and the results of the Construction Planning Workshops with institute partners.

The latest estimate for construction only costs, based on inputs from consortia, for the SKA-1 Design Baseline, is €914M (2017 €) including contingency. This compares to the cost cap of €691M (2017 €), including contingency, for construction of the Deployment Baseline, which is the scope achievable within the financial constraints identified under the Cost Control Programme.

Dr McMullin noted that contingency will be centrally managed and must be available in cash. The Board endorsed use of an 80% probability of success metric for contingency development.

Start of Construction (T0) for SKA-Mid and SKA-Low is scheduled for January 2021.

Operations

Antonio Chrysostomou, Interim Director of Operations, presented an update on operations workshops, operations planning and the newly established SKA Regional Centre Steering Committee (SRCSC).

An SKA-Mid Workshop was held in Cape Town on 21-22 February 2019 and an SKA-Low Workshop was held in Perth on 13-14 March 2019. Dr Chrysostomou reviewed the main lessons learned from these workshops and noted that operations forums have been established with both SARA and CSIRO.

The Operations Plan has not been updated since it was presented as an initial draft to the Board at SKA-BD-29 (March 2019). However, it is intended to develop 3 further revisions before submission to the SKA Observatory Council. An independent, external review of the Operations Plan (Rev 3) is expected to take place by 2020Q2.

The SRCSC's terms of reference were approved by the Board at SKA-BD-29 (March 2019) and the first meeting of the Committee was held at SKA HQ on 8-9 May 2019. At this meeting, Peter Quinn was appointed as SRCSC Chair and Michiel van Haarlem as Vice-Chair. The SRCSC prioritised several areas for future work, including development of the broad principles (users, functions and operational model) for a network of SRCs for presentation at the 2019 SKA Shanghai Meeting.

Procurement

Ian Hastings, Head of Procurement Services, presented an update on the development of the procurement process, which is based on the 'Hybrid Model' presented at SKA-BD-29 (Mar 2019). This model, which was endorsed by the Council Preparatory Task Force (CPTF), provides a pragmatic, flexible approach to procurement, which is neither fully allocative nor fully competitive.

Mr Hastings confirmed that a structured questionnaire will be sent to Members in July 2019 as a follow-up to the 2018 procurement Request for Information. It is intended to further clarify where allocation is required.



Branding

William Garnier, Director of Communications, Outreach and Education, presented the outcomes of a comprehensive review of the SKA brand, which was carried out in 2018-19. This review included surveys targeting the SKA community and beyond. Mr Garnier noted the key conclusions of the brand surveys and the key elements to be considered for a refresh of the SKA brand.

Policy

Patricia Kelly, Chair of the Council Preparatory Task Force (CPTF), presented a report on the outcomes of recent CPTF meetings. The Board was informed that it is currently anticipated that the SKA Observatory Convention is likely to enter into force by mid-2020.

Simon Berry, Director of Strategy, presented an update on progress to develop a partnership model to help deliver the operations of SKA-Mid in South Africa and SKA-Low in Australia. Two bilateral agreements, one between the SKA Observatory and SARA0 and the other between the SKA Observatory and CSIRO are envisaged. It is proposed that the activities undertaken by the partners under these legally binding agreements will be centrally funded by the SKA Observatory.

Theresa Devaney, Head of Business Development and Change, reported on the status of planning for the transition from the SKA Organisation to the SKA Observatory. The formal start of the transition process is expected to commence in mid-2020, with the SKA Observatory becoming operational by 2020Q4. The Board noted that confirmation of funding for 2021 is a pre-requisite to start the transition process.

Ms Devaney stated that work is on-going to design the future SKA Observatory, with continuity of skilled and experienced staff into the SKA Observatory being viewed as a critical aspect of the transition process. The Board noted that the HR transition plan has been updated to prioritise key HR activities leading to development of the detailed cost impact of any future structure and alignment of future structure with the Operations Plan and Partnership Model.

The Board noted on-going work to develop the legal agreement underpinning the transition process, and external legal advice regarding future company closure. It also approved the establishment of a Memorandum of Understanding to govern the relationship between the SKA Board, CPTF and the SKA Observatory Council during the transition period.

Administration and Governance

David Luchetti, Chair of the SKA Finance Committee, presented a report of the Finance Committee's meeting on 11 June 2019. In addition to regular updates from the SKA Office, the main items of business at this meeting were the external auditor's report for 2018, the Report and Financial Statements for 2018, an update on foreign currency exposure management, and a proposed amendment to the Company's finance policies.

The Board approved the Report and Financial Statements for the period ended 31 December 2018. It also approved the appointment of Catharina Sasse (Max-Planck-Gesellschaft, Germany) to the Finance Committee.

The next Board meeting (SKA-BD-31) will be held on 19-20 November 2019 (Nice, FR). The programme for further Board meetings in 2020 has yet to be confirmed.

Catherine Cesarsky
Chair, SKA Board of Directors
25 July 2019