# Position Details

## Research Management CSOF7

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| The following information is for applicants |
| Advertised Job Title | Head of Engineering Operations – SKA-Low Telescope |
| Job Reference | 80621 |
| Tenure | Indefinite Full-time, job-share or part-time – minimum 60 hours per fortnight*Note that visa sponsorship may not be available for part-time positions.* |
| Salary Range | AU$141k - AU$157k pa (pro-rata for part-time) + up to 15.4% superannuationSalary range is negotiable where necessary to meet market rates. |
| Location(s) | Geraldton, Western Australia |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates |
| Position reports to the | This role will be line managed by the SKA-Low Deputy Telescope Director. Project reporting and work management will be to the SKA-Low Telescope Director, and the appointee will have close working relationships with the SKAO Engineering team in the UK.  |
| Number of Direct Reports | 4 (spanning out to an overall team that will grow to 30-40 people) |
| Enquire about this job | George Simpson, SKA-Low Deputy Telescope Director, George.Simpson@csiro.au  |
| How to apply | Apply online at <https://jobs.csiro.au/> Internal applicants please apply via **Jobs Central**If you experience difficulties when applying, please email careers.online@csiro.au or call 1300 984 220. |

### Background

The SKA Observatory (SKAO) is a next-generation global radio astronomy facility that will revolutionise our understanding of the Universe and the laws of fundamental physics. It is one observatory with two telescopes: SKA-Low in Western Australia and SKA-Mid in South Africa. Australia is a co-host member of the SKAO, an intergovernmental organisation headquartered at Jodrell Bank (near Manchester in the United Kingdom) responsible for SKAO construction and operations globally.

The first phase of the SKA will consist of two telescopes:

* Australia will host the SKA’s low-frequency telescope (SKA-Low). SKA-Low will comprise up to 131,072 antennas in clusters along spiral arms spanning 65 km at CSIRO’s Murchison Radio-astronomy Observatory (MRO) in Western Australia about 350 km northeast of Geraldton.
* South Africa will host the mid-frequency telescope (SKA-Mid). SKA-Mid will comprise up to 197 dishes spread along spiral arms spanning 150 km.

CSIRO is involved in several facets of the SKA-Low in Australia:

* Operating partner: SKAO will partner with CSIRO to operate the SKA-Low Telescope and support construction.
* Construction: CSIRO has been allocated work in digital processing, infrastructure, antenna station management and deployment, integration and verification, and software.

CSIRO also operates the MRO which hosts multiple national and international radio astronomy telescopes and is where the SKA-Low Telescope will be located. CSIRO is responsible for land management, subleases, maintaining radio quiet protections, provision of services to the telescopes, and managing the Indigenous Land Use Agreement.

Further Reading: [SKA Phase 1 Executive Summary](https://www.skatelescope.org/wp-content/uploads/2021/03/22380_SKA_Project-Summary_v4_single-pages.pdf).

### Role Overview

The SKA Observatory will be amongst the largest and most demanding science facilities in the world. SKAO operate two telescopes on three continents for a global scientific community. Keeping the telescopes operating at optimum performance is a critical requirement for the engineering operations team. The observatory’s operations will be guided by engineering principles that maximise system performance and availability. The magnitude of the project requires a well-defined maintenance and support system which balances affordable operating costs with high availability and excellent performance.

The Head of Engineering Operations will be responsible for maintenance and engineering operations of the SKA-Low Telescope, from antennas and stations through the signal chain to the central signal processor, as well as the critical supporting infrastructure for the telescope. The systems will be progressively handed over from construction to operations, with full operating capability of the telescope expected in 2028. A critical role for the Head of Engineering Ops will be to work with the science team to determine and undertake testing, maintenance, and improvements in conjunction with the engineering team to ensure the telescope reaches and maintains peak performance.

The Head of Engineering Operations will be responsible for managing and directing the work of the operations and maintenance teams, which are anticipated to grow to between 30 and 40 people, to deliver the engineering objectives of the telescope. The appointee will be an individual with expertise covering the wide span of operations, with specific experience in engineering operations in the context of an astronomical observatory, high-technology capability, or scientific facility.

The Head of Engineering Operations will:

* Provide oversight and monitor the underlying services and systems that impact the operations of the SKA-Low telescope. They will identify, develop, and implement these activities to maximise the engineering outcomes within the available resources.
* Lead the effort to define rules and procedures for engineering operations and maintenance of the telescope working closely with Operations colleagues at the SKA Observatory in the UK.
* Work closely with colleagues in the SKAO Engineering Performance group in the UK, to establish configuration standards, technical publications, maintenance and support data and systems.

Due to the locations involved in the SKA project, in particular South Africa and the United Kingdom, this role will require an ability and willingness to work outside normal hours. It will also require domestic travel to the Murchison Radio-astronomy Observatory and Perth and may require occasional international travel. Both CSIRO and SKAO value and respect difference and are committed to building an inclusive culture by creating an environment where you can balance a successful career with your commitments and interests outside of work. We believe that you will do your best at work if you have a work / life balance. Some roles lend themselves to flexible options more than others, so if this is important to you, please raise this during your interview, as we are open to discussing flexible working opportunities during the hiring process.

### Duties and Key Result Areas

* Work as one of the senior staff of the SKAO in Australia as a member of the SKA-Low Management Team.
* Provide the vision and leadership for a group of 30-40 staff who will be responsible for the engineering needs of SKAO in Australia as well as the operational support and local development of the SKA-Low telescope, building an inclusive and high performing culture.
* Work with CSIRO and SKAO to hire a diverse and talented team of staff to support the engineering operations needs of the SKAO in Australia.
* Own the SKA-Low telescope Standard Operating Procedures for engineering and maintenance activities to plan and implement engineering operations end-to-end, providing updates and reports as necessary.
* Work as a senior member of the Operations group to represent engineering performance issues, to promote and encourage best engineering practices.
* Work closely with the SKAO Engineering Managers in all aspects of engineering operations and performance across the Observatory to deliver common approaches that maximise efficiency and performance.
* Support the roadmap development for the tools, processes and techniques that will be required for the oversight and management of engineering performance of the Observatory.
* Manage the process of operations-initiated engineering changes to the telescope including the root cause analysis, change proposal and onsite implementation of the changes.
* Travel, as required, to national and international meetings to represent the SKAO and the Engineering Operations of SKA-Low in Australia in particular.
* Communicate openly, effectively, and respectfully with all staff, clients, and suppliers in the interests of good business practice, collaboration, and enhancement of SKAO and CSIRO’s reputation.
* Adhere to the spirit and practice of both SKAO and CSIRO’s Values as well as the Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Zero Harm goals.
* Undertake any other reasonable duties as directed.

## **Selection Criteria**

#### Essential

Under CSIRO policy only those who meet all essential criteria can be appointed.

1. A degree in a relevant field of engineering or science (for example mechanical, electronic, electrical, or physics).
2. A minimum of approximately 5 years relevant professional experience in engineering leadership of a high-technology or scientific facility.
3. Demonstrable record of successfully delivering long-term monitoring of engineering performance, tracking of metrics, and of driving performance improvements to manage an efficient engineering and maintenance operation.
4. A demonstrated record of successful leadership and management of teams, promoting diversity and developing an inclusive, high-performing culture. Experience of all aspects of people management including recruitment, capability development and performance management.
5. Demonstrated ability to communicate clearly, concisely, and confidently at all levels, presenting complex engineering issues and concepts in a style appropriate to the audience, and the ability to represent SKAO externally.
6. Excellent interpersonal, communication and negotiation skills, with the ability to influence, build trust, shape conversations, and change behaviours through effective relationship-building.

#### Desirable

1. A record of successful leadership and management of engineering teams on similar or comparable scientific projects.
2. Membership of a relevant professional body and / or Chartered Professional Engineer status.
3. Familiarity or experience with radio astronomy engineering, operations, or closely allied activities.
4. Experience of the transition from construction to operations.
5. An Australian Class ‘C’ driver’s licence (or equivalent).

## **Required Competencies**

* **Teamwork and Collaboration:** Creates and fosters an environment in which there is a high level of cooperation within and between teams. Facilitates positive team relationships to build interactions across Business Units and the organisation.
* **Influence and Communication:** Uses complex influencing strategies, for example, assembling strategic coalitions, building behind the scenes support and the tactical use of information to gain support.
* **Resource Management/Leadership:** Provides leadership that fosters an environment that encourages new ideas and provides support for the development of emerging skills. Creates trust by displaying consistency, understanding, integrity and patience. Plans, seeks, allocates and monitors resources to achieve outcomes.
* **Judgement and Problem Solving:** Resolves major conceptual scientific, technical, commercial or management problems, which have a significant impact upon the field of research, professional function, the Business Unit or the Organisation. Situations faced have little or no precedent and require original concepts and approaches.
* **Independence:** Commits significant resources in the face of uncertainty and takes calculated risks to improve performance and achieve challenging goals. Uses personal energy to drive change strategies. Formulates and implements contingency plans to minimise the impact of potential risks. Accepts personal responsibility for the outcomes of decisions/risks taken.
* **Adaptability:**Is flexible in response to external change or when faced with external constraints. Identifies and promotes the opportunities arising as a result of change.

**Special Requirements**

The successful candidate will be asked to obtain and provide evidence of a National Police Clearance or equivalent. Please note that individuals with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.

If the successful candidate is not an Australian Citizen or Permanent Resident, they may be required to undergo additional security clearances, which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test).- <https://ielts.com.au/>

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) and [Space and Astronomy](https://www.csiro.au/en/Research/Astronomy) for more information.

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

* People First
* Further Together
* Making it Real
* Trusted

## **About SKAO**

## SKAO is coordinating a global effort to deliver the largest science facility on the planet. The SKA Observatory will build next-generation radio telescopes that will help to answer key questions in astrophysics, drive technological innovation and support human capital development. Visit [SKA Observatory](https://www.skatelescope.org/) online for more information.

## SKAO’s values are:

* Diversity and Inclusion
* Excellence
* Collaboration
* Creativity and Innovation
* Sustainability