



ATNF of the Future

Beginning the development of a 10-year ATNF strategy

George Heald | 4 April 2022

ATNF vision (today)

We operate world-class radio astronomy facilities for users from across Australia and around the world.

We are global leaders in technology and research, exploiting the world's premier radio quiet site.

We attract and retain the best staff.

ATNF vision (today)

An aerial photograph of the Australia Telescope National Facility (ATNF) radio telescope array. The image shows a vast, flat, arid landscape with numerous radio telescope dishes arranged in a grid pattern. The dishes are supported by tall metal masts and are oriented towards the horizon. The ground is a mix of reddish-brown soil and sparse, dry vegetation. In the background, a small white building is visible on the right side. The sky is clear and blue.

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Looking ahead to the SKA era

Short term (2022-24)

ATNF upgrades

- CryoPAF
- BIGCAT
- CRACO

Computing / software

- Pawsey upgrade
- Software for CryoPAF and BIGCAT

Observing

- Start ASKAP survey ops
- New Legacy Surveys?

SKA

- Construction starts

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Mid future (up to ~2030)

ATNF development

- UWH (Parkes/Murriyang)
- LAMBDA / VLBI
- ASKAP upgrade

SKA

- Array releases

10-yr timescale (~2030+)

Observing

- New ASKAP surveys
- Start of SKA observing
- SKA KSPs
- SKA VLBI

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Additional considerations

- Next Australian astronomy decadal plan (2026-2035)
- New CoE(s) e.g. OzGrav 2023-2030?
- ESO strategic partnership (2017-2027)
- AusSRC (2022-2031)
- Other developments: LSST, JWST, ngVLA, LIGO, ...

Recent developments

- In-house strategy discussions held during from October 2020 through 2021, focusing on our necessarily evolving role
- Questions to ATSC in 2021: How best to support broad community engagement with SKA; Coordination with AusSRC and SKAO
- The new aspect is in bringing our strategic discussion forward into the 10-year outlook (rather than focusing on a somewhat shorter timeframe), aligned with ATSC expectations

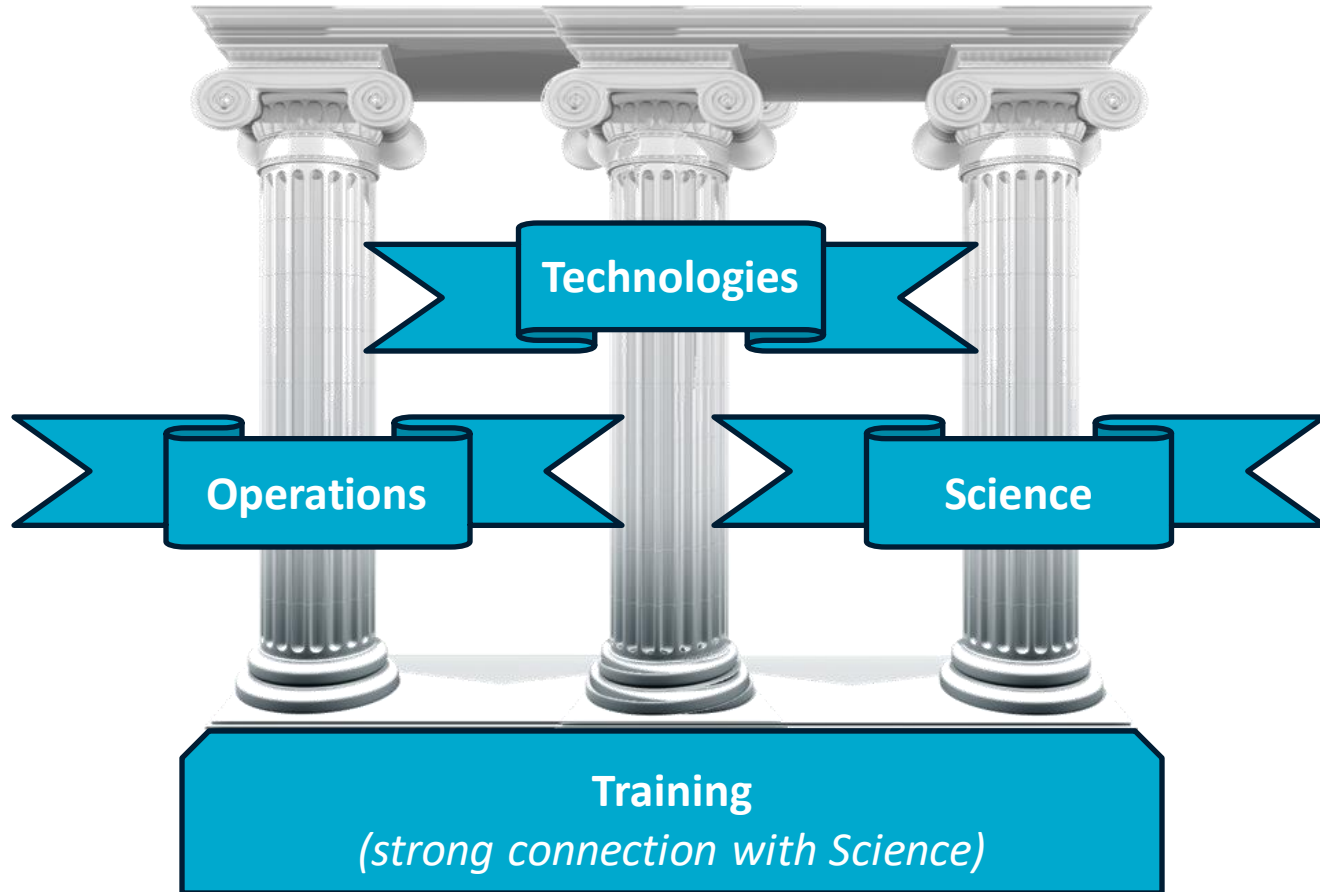


ATNF of the Future

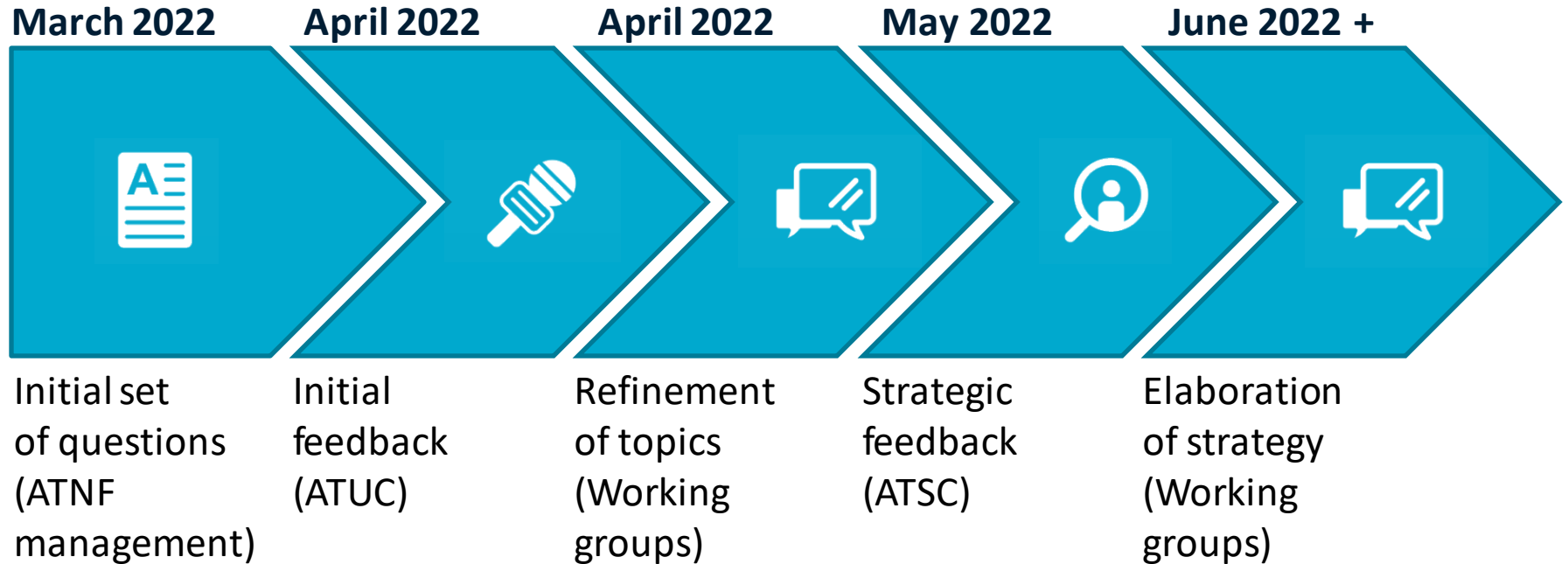
- Establish ATNF Vision for 2032
- Develop strategy to achieve this vision
- Integrate input from ATUC and ATSC
- Broad consultation: internal and user community
 - Encouraged by ATSC to include as much consultation as possible



"Pillars" of ATNF



Approach



Initial key questions

- Technologies
 - What is the long-term purpose of the Technologies program? How to maximise value for ATNF (e.g. ASKAP upgrades), the future of SKA, and beyond (spin-offs)?
- Operations
 - What is the best operational model for our telescopes in the long term? How do we maximise efficiency, reliability, and sustainability? How do we cope with RFI?
- Science
 - How do we ensure that our research activities are well aligned and supporting the National Facility? How do we enhance key collaborations including Universities?
- Training
 - How do we best train people to both support the National Facility and translate skills to other domains? How does this align with SKAO and AusSRC?

Next steps

- We welcome input from ATUC
 - How does ATUC suggest that we include them and the broader community?
 - What does ATUC see as crucial training to retain, and/or new training in future?
 - How can we best strengthen Uni connections (students, joint appts, LIEFs, etc)?
- Further develop key discussion topics for ATSC input/advice
 - Commence Working Group activities
 - Ongoing ATUC involvement is key
- Short timescale for initial development, followed by further elaboration in second half of 2022
- This work will also inform our preparations for next Decadal Plan

Thank you

Space & Astronomy

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Australia's National Science Agency

