ICRAR

International Centre for Radio Astronomy Research

CSIRO

PAWSEY supercomputing centre

AusSRC update

Slava Kitaeff

AusSRC Program Lead

Curtin University

The Government of Western Australia

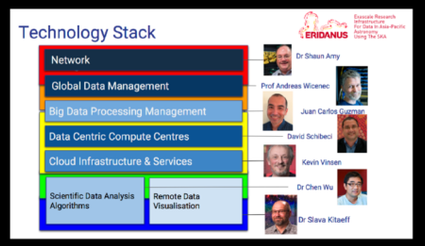
The University of Western Australia

Retrospective (2017-2018)

- April 2017 - ERIDANUS launched, 1st SKA Big Data workshop

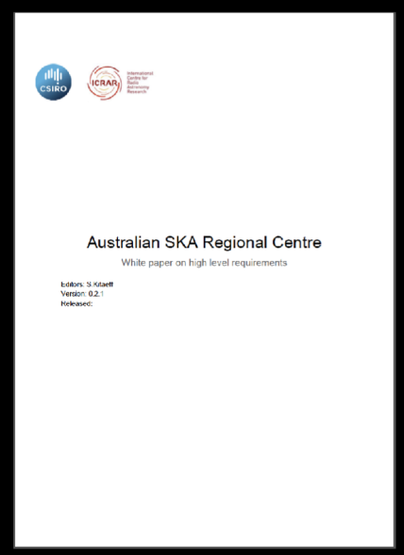
- November 2017 – 1st AusSRC Community Workshop

- March-April 2018 – Industry engagement events (Perth and Sydney).



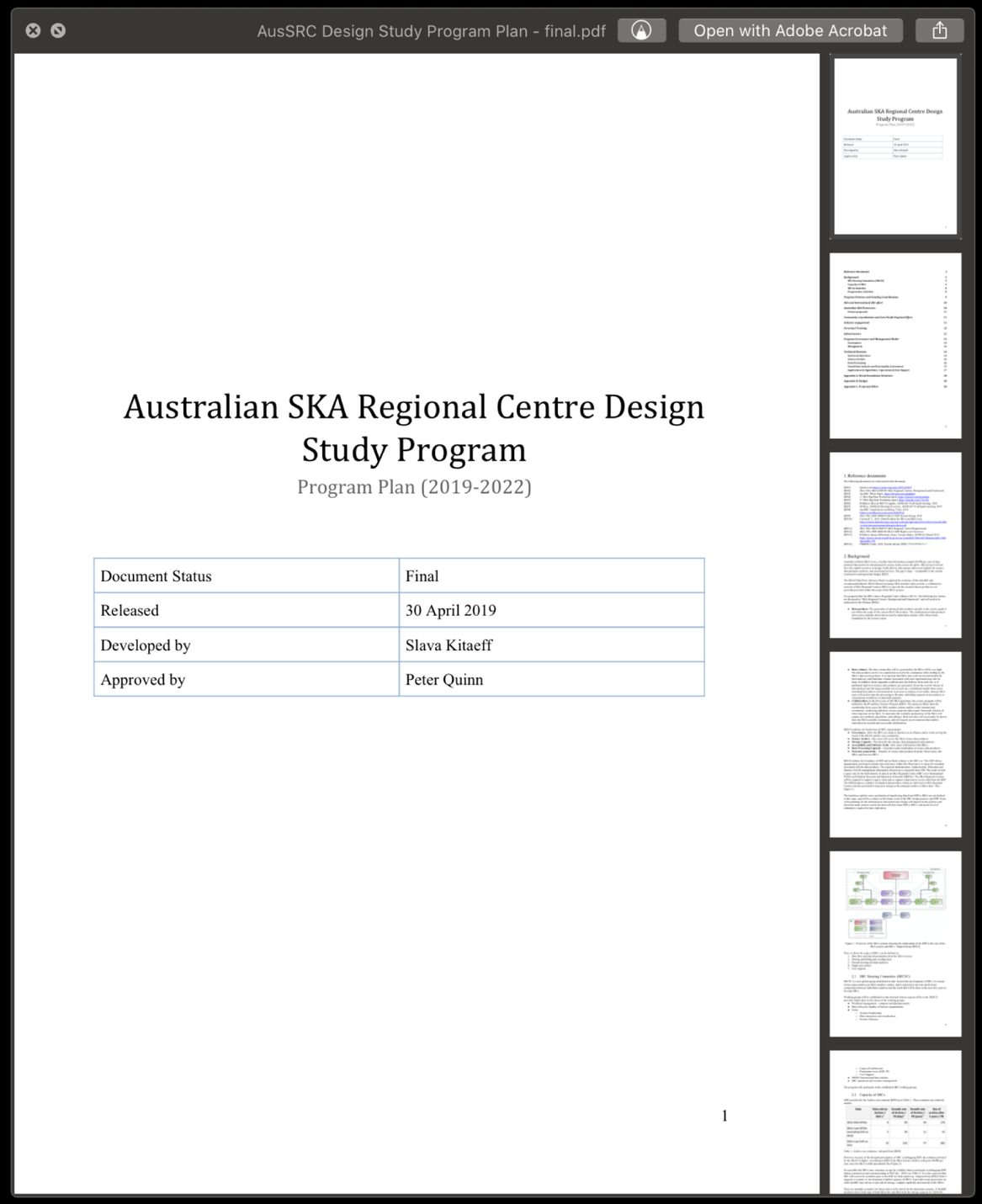
- April 2018 – 2nd SKA Big Data workshop (prototyping)

- May 2018 – AusSRC White Paper released



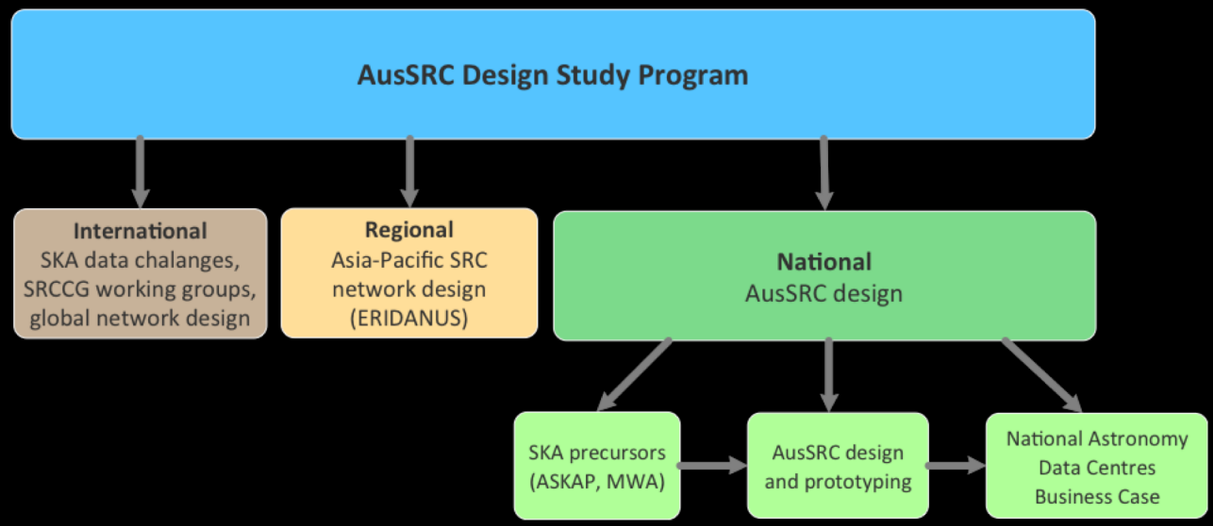
- June 2018 – AusSRC Management Committee is formed.
- October 2018 – AusSRC Design Study Program (DSP) planning started

AusSRC Design Study Program

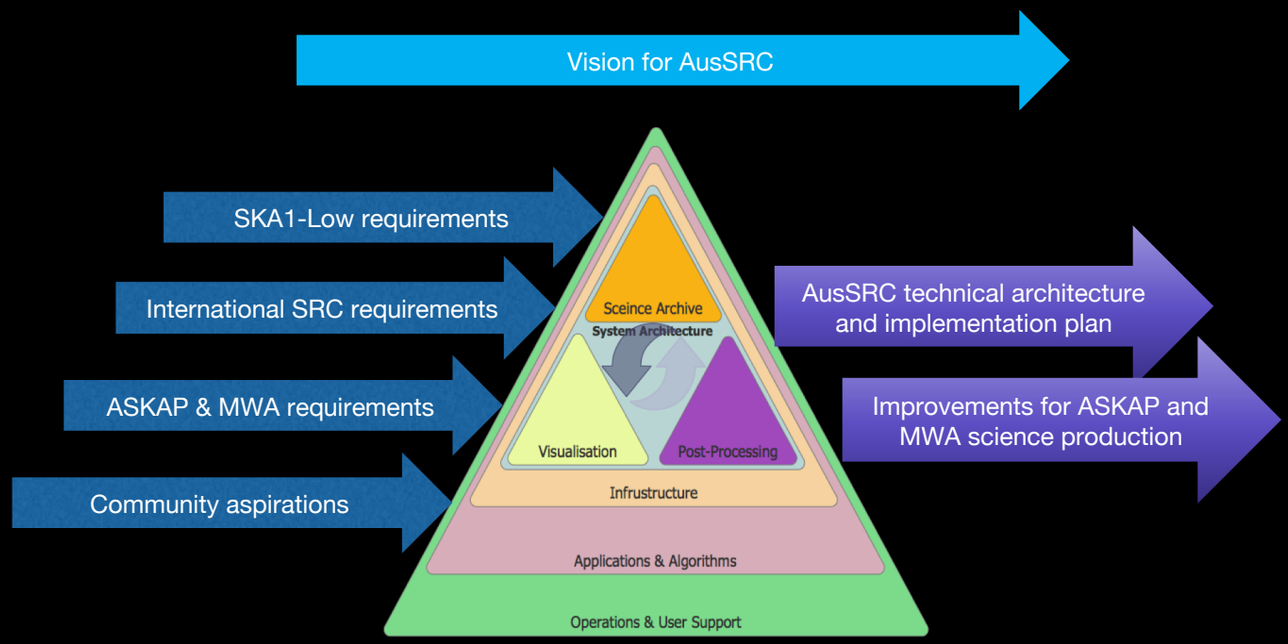


AusSRC Design Study Program

- Partner institutions: ICRAR, CSIRO, Pawsey, AAL
- $4+ m AUD (CSIRO $1.8m, DIIS $2m, Pawsey $0.4m)
- 2020-2022
- Program structure:



- Methodology:

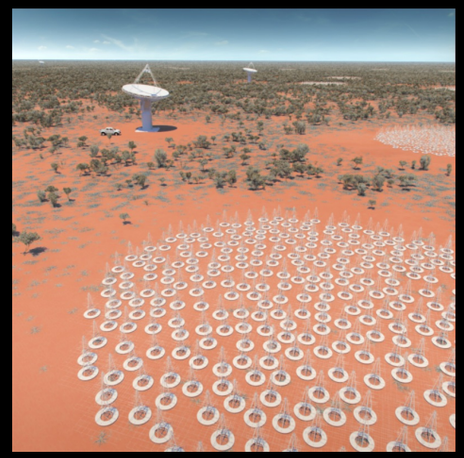


Timeline

- Originally thought to begin July 2019.
- New begging - Jan-Feb 2020
- Review in 2 years – end 2021
- Submitting AusSRC Business Case - 2021

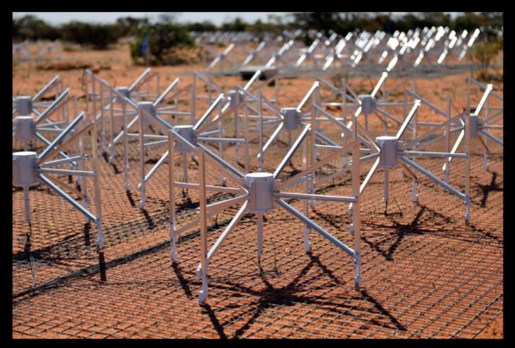
SKA precursor focus

- Data flow architectures
- Execution frameworks
- Data storing and archiving
- Strategies and systems to monitor and control cost
- Networking optimisation
- Post-processing
- Cloud computing options
- Data analysis and visualisation



SKA-1 Scale

Technology Development Projects



ASKAP & MWA Science Projects

300+ PB/y

15 PB/y

AusSRC pilot SKA precursor projects

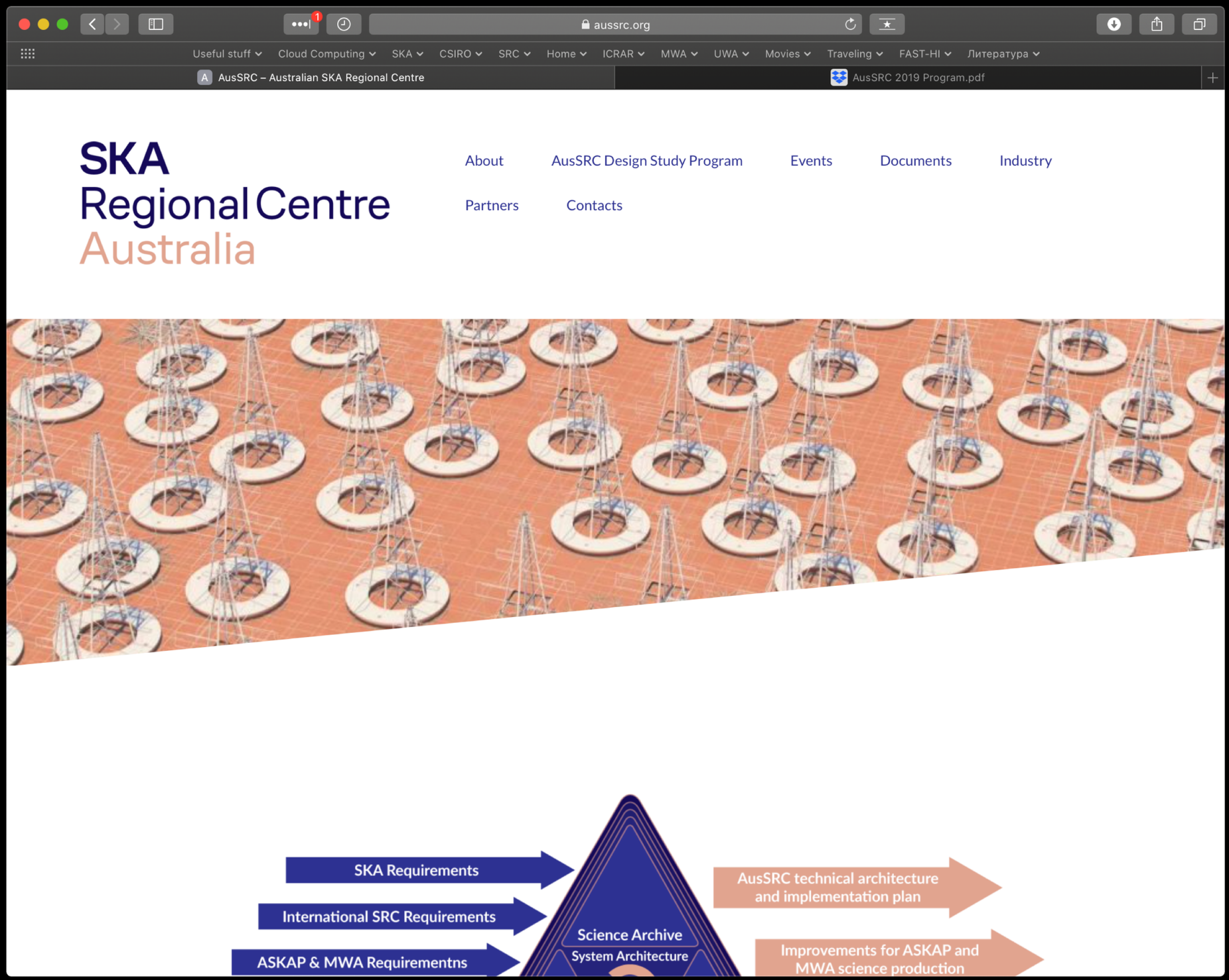
- ASKAP Evolutionary Map of the Universe (EMU)
- Widefield ASKAP L-band Legacy All-sky Blind surveY (WALLABY)
- MWA Epoch of Reionization (EoR)

Program Management

Key principals:

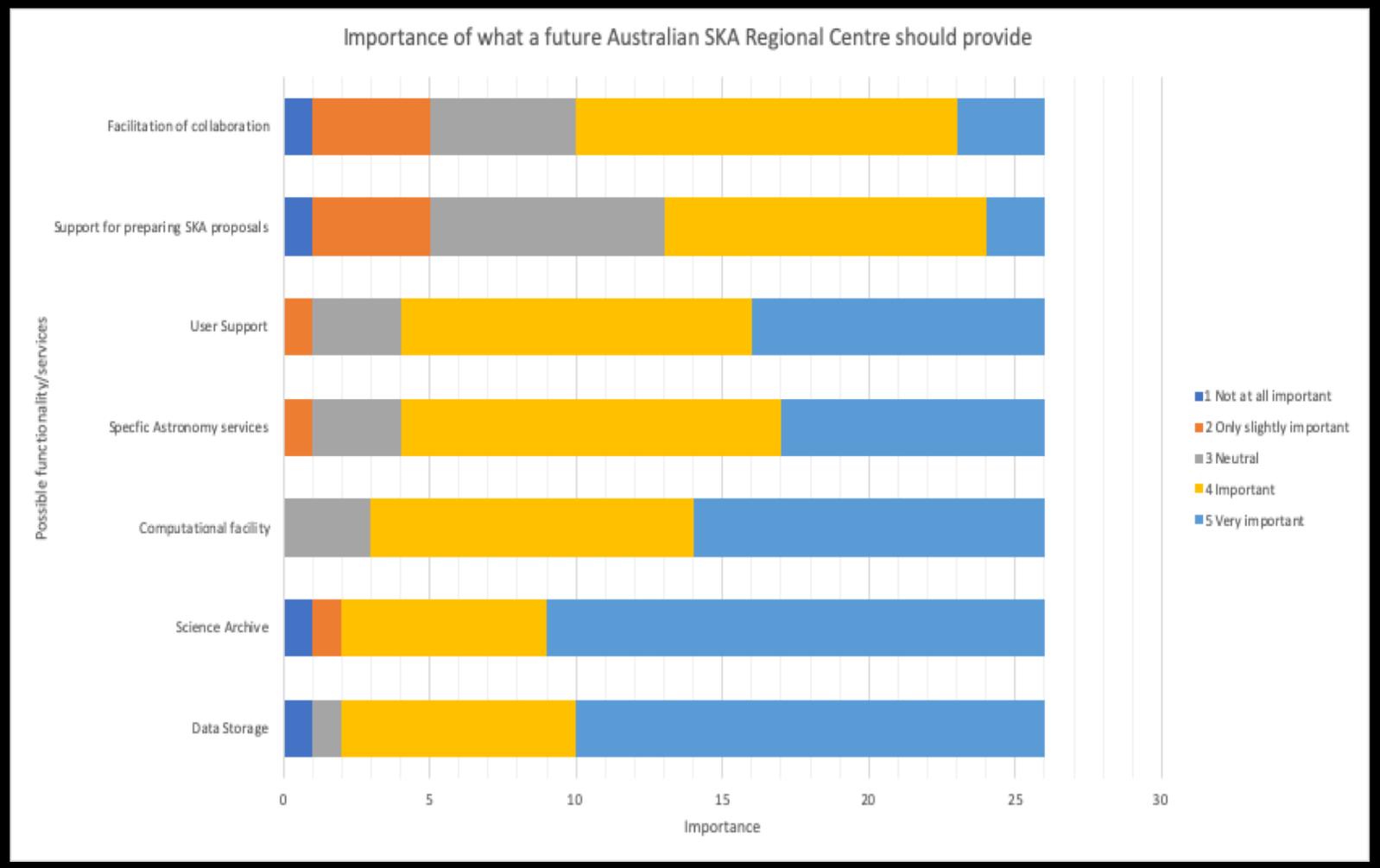
- One Program - many host institutions
- Program is a pool of experts
- Integration with the science and technical teams of ASKAP, MWA, ICRAR DIA, CASS S&C, and Pawsey for the knowledge transfer
- Use of best practises (DevOps, Agile)

AusSRC new website! https://aussrc.org



Australian radio data user survey

- User profiling
- Data profiling
- Tools profiling
- Identifying gaps
- Identifying priorities for AusSRC



2nd AusSRC Community workshop (8 Nov)

AusSRC Workshop 2019

PROGRAM

8:55-9:00	Welcome	George Heald, Martin Meyer
	Session 1: AusSRC overview and survey results	
9:00-9:30	Overview of SRC white paper	Peter Quinn
9:30-10:00	AusSRC design study program (remote)	Slava Kitaeff
10:00-10:30	Radio astronomy data users survey	Louisa Quartermaine
10:30-11:00	*Morning tea*	
	Session 2: Lessons learned from existing facilities	
11:00-11:20	Lessons learned from large surveys with the MWA (remote)	Natasha Hurley-Walker
11:20-11:40	Radio astronomy data processing: lessons from ASKAP	Aidan Hotan
11:40-12:00	Distributed user support: lessons from the national Gemini offices	Stuart Ryder
12:00-12:20	Tricks and challenges with processing spectral line big data in the SKA era: what precursors can tell us	Chenoa Tremblay
12:20-1:30	*Lunch*	
	Session 3: AusSRC prototyping activities	
1:30-1:45	Extracting the science from the data in EMU	Ray Norris
1:45-2:00	Wallaby	Tobias Westmeier
2:00-2:15	EoR (remote)	Cath Trott
2:15-2:30	DINGO	Martin Meyer
2:30-2:45	Extended HPC computing using the cloud (remote)	Kevin Vinsen
2:45-3:00	The importance of large-scale visualisation of multiple 3D datasets at SRCs	Katie Jameson
3:00-3:30	*Afternoon tea*	

Discussion

- AusSRC priorities
- Governance & community engagement
- Participation in the international SRC development

Prototyping activities

AusSRC prototyping platform.pdf — Open with Adobe Acrobat

Australian SKA Regional Centre

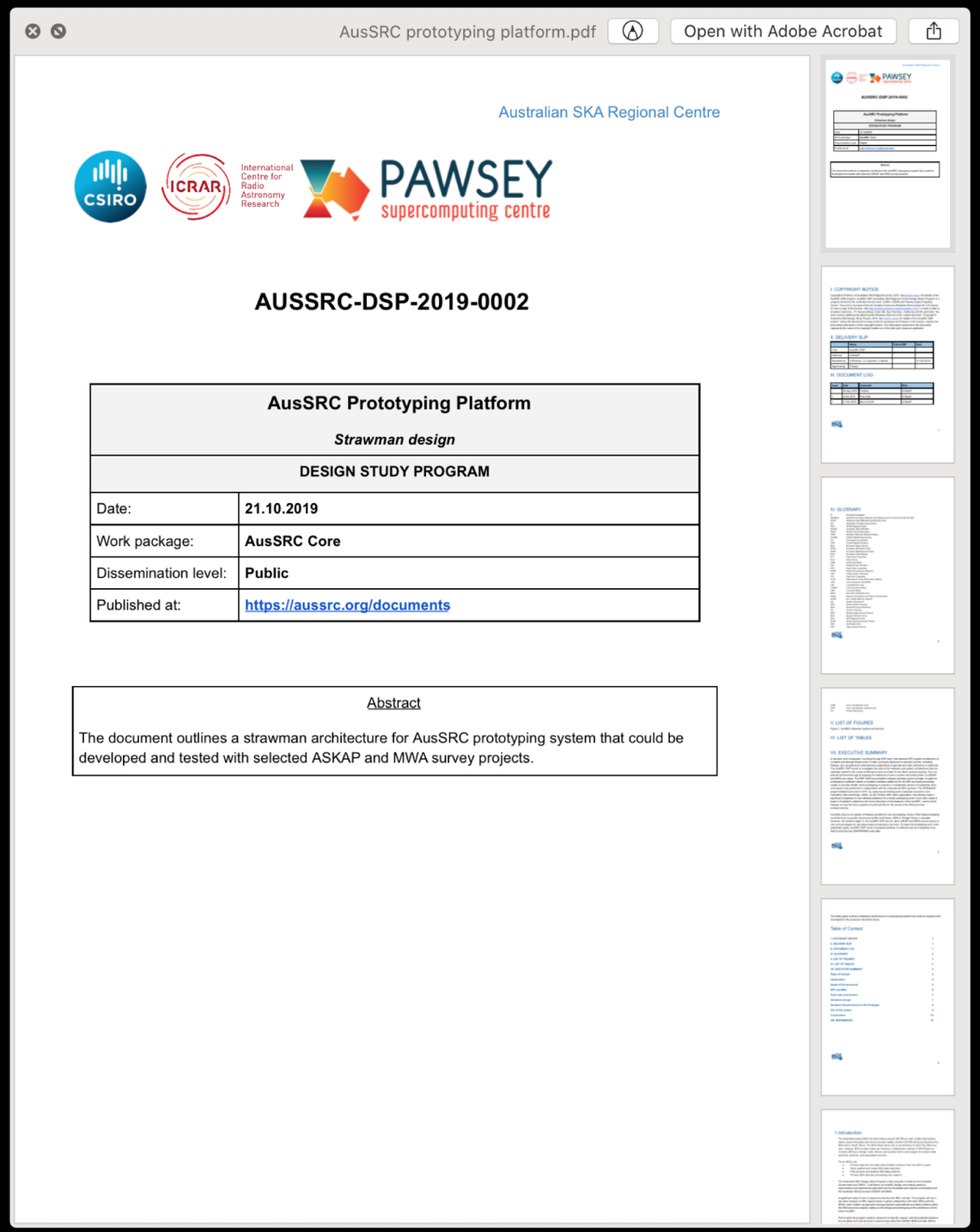
CSIRO · ICRAR International Centre for Radio Astronomy Research · PAWSEY supercomputing centre

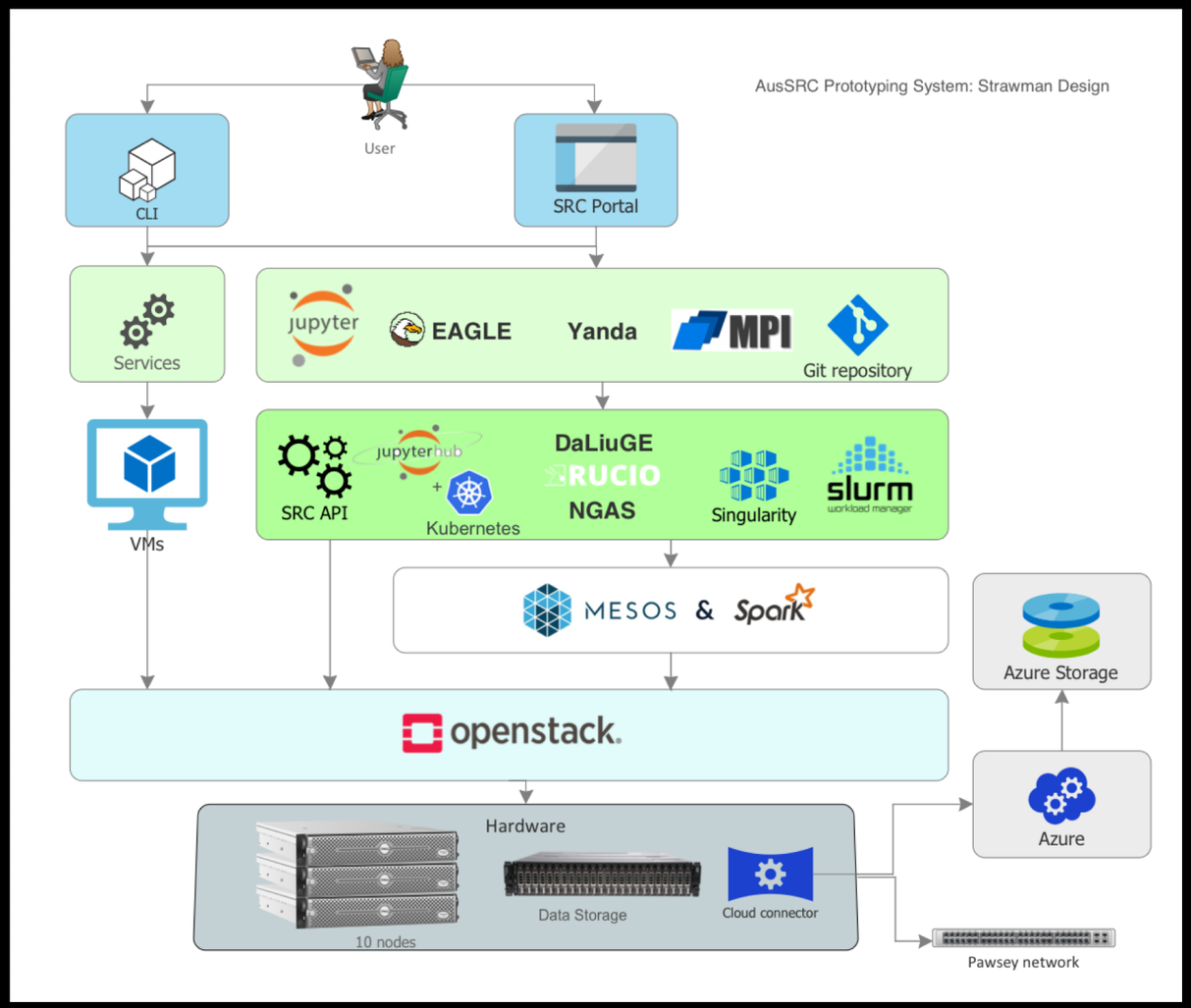
AUSSRC-DSP-2019-0002

AusSRC Prototyping Platform *Strawman design*	
DESIGN STUDY PROGRAM	
Date:	**21.10.2019**
Work package:	**AusSRC Core**
Dissemination level:	**Public**
Published at:	**https://aussrc.org/documents**

Abstract

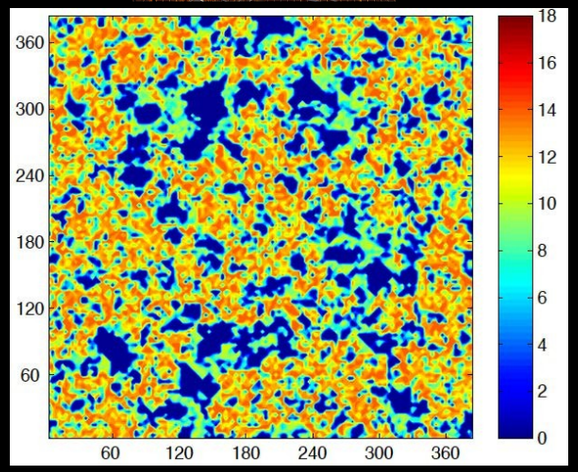
The document outlines a strawman architecture for AusSRC prototyping system that could be developed and tested with selected ASKAP and MWA survey projects.





SKA1-low simulation

Telescope Model



EoR Sky Model

OSKAR2
Correlator
simulation

SPEAD2

7.3 billion vis/sec
400 GB/s

Ingest Pipeline

Averaging

3 hr run time = 6 hrs SKA1-low

Measurement
Sets

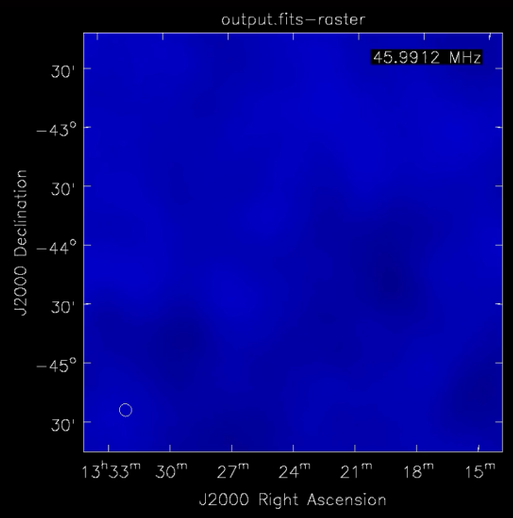
106 m vis/sec

disk
150 TB
10 GB/s

Imaging Pipeline

ASKAPSOFT
DALiuGE

Image Cube



We are hiring!

- AusSRC Director (UWA-CSIRO)
- System Specialist (CSIRO)
- Software Specialist (Curtin)
- Software Specialist (CSIRO)
- Visualisation Specialist (Pawsey)