

SKA and ASKAP

The Role of Education: An Industry Perspective

Talk to Academic and Educational Institutions in WA
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Disclaimer: Views expressed in this talk are personal and are neither endorsed by nor commit Cisco to any liability or obligation.

Introducing me

1970s

**BA(Hons) politics (LaTrobe Uni)
diplomat
university lecturer**

1980-2002 – RAAF

**intelligence
security
capability development (\$2bn portfolio of projects
with associated R&D sponsorship)**

Nov 2002

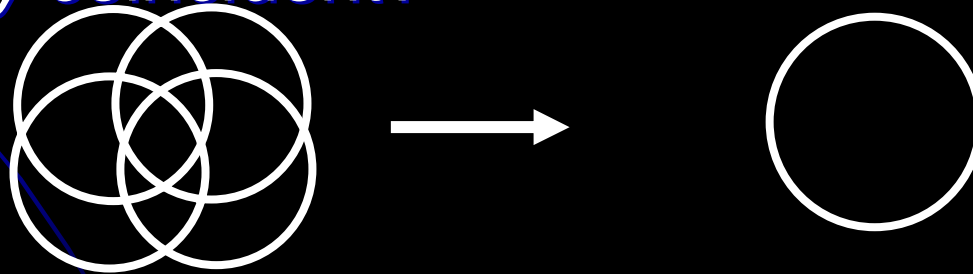
**joined Cisco – “internet in space”
1 of a team of 16 world-wide
Canberra-based**

Chair:

**Australia Telescope Steering Committee
Australian Antarctic Astronomy Advisory
Committee
Australian Defence Information and Electronic Systems
Association**

Currencies

- Science: Nobel Prizes
- Politics: Votes/Jobs
- Business: Money
- Education: Scientists, Engineers, Technicians
- How do we make these *necessarily and sufficiently* coincident?



Measurement, Language, Cognition and Capability

- Measurement: Case Study: The horse!
- Defining Success and measuring it
 - Key task: Ask the right question (know what you want)
- Language:
 - Pronouns are about ownership and commitment
 - Adjectives are about special pleading
 - Use the language of those we seek to influence
- Cognition: of atoms and electrons / the analogue and the digital worlds – the role of experimentation and the impact of screen-based work
- Capability: POSTED – people, organisation, sustainment, training, equipment, doctrine

Space: The Handicaps

- Failed space launch projects
- Failed satellite proposals
- Common themes
 - technology push vs user pull – ill-defined user requirements
 - ‘funny’ money – ill-defined business cases
 - poor industry behaviour – exaggerated claims
 - separation of security space from civil and commercial space investment and applications
- Australian Governments have a jaundiced view of the space community – with good cause
 - Readily dismissed, with notable exceptions, as geeks, kooks and special pleaders

Space: Successes

- Astronomy – since WW2, successful at attracting the support of Governments (Parkes, AAO, ATCA, and now national research infrastructure funds for ASKAP, optical and Antarctic astronomy) **ONE VOICE**
 - OTHR radar and the associated science
 - Data fusion (Defence)
 - **IMPORTANT CONTRIBUTION TO US ALLIANCE**
 - SCRAM jet and plasma thruster research
 - Support to MARS rover missions
 - FEDSAT and EOS laser tracking of space debris
 - **FUNDAMENTAL SCIENCE**
 - Conference invitations – growing awareness
 - VSSEC, ASRI
- (comment on Woomera developments and Kistler)

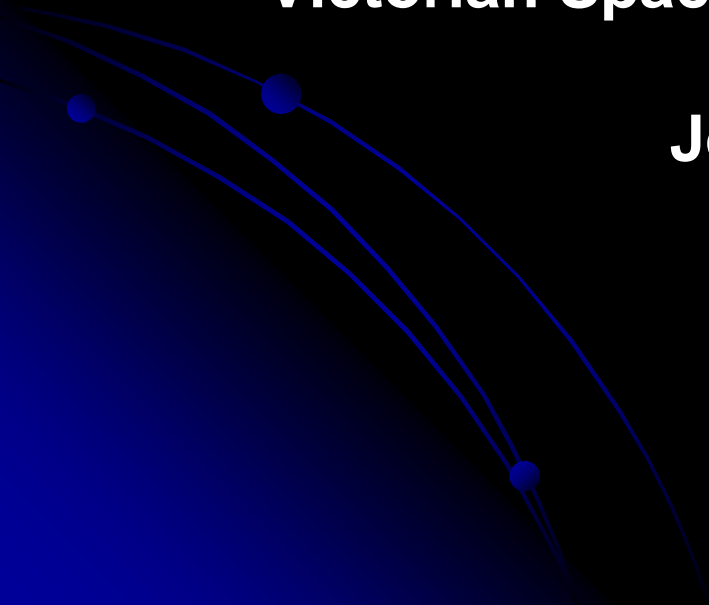
Space as inspiration

Keeping kids in science

Sustaining our economy and society

Victorian Space Science Education Centre

Jobs eventually



Focus Question

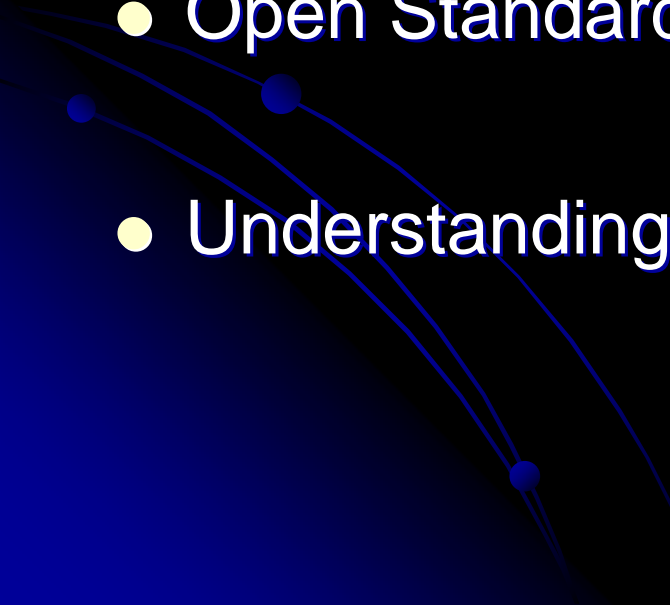
If Australia can own only one core component of SKA capability, what should that be?

My Answer

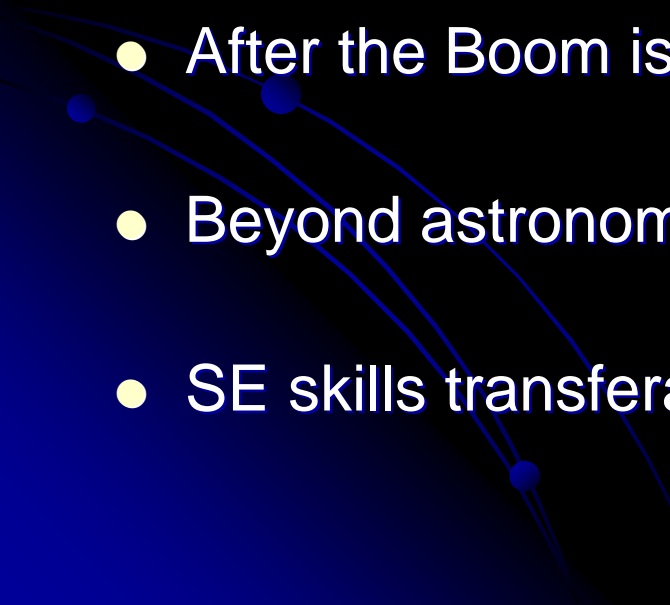
The architecture
Australia the 'go to' country for
System Engineers



System Engineering

- Systems of systems
 - Fundamentally integrating COTS
 - Open Standards and architectures
 - Understanding n^{th} order effects
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System Engineering

- Astronomy the incubator
 - Own the architecture
 - Australia the 'go to' country for SEs
 - After the Boom is Over . . .
 - Beyond astronomy
 - SE skills transferable to other complex domains
- 

Thank you

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