

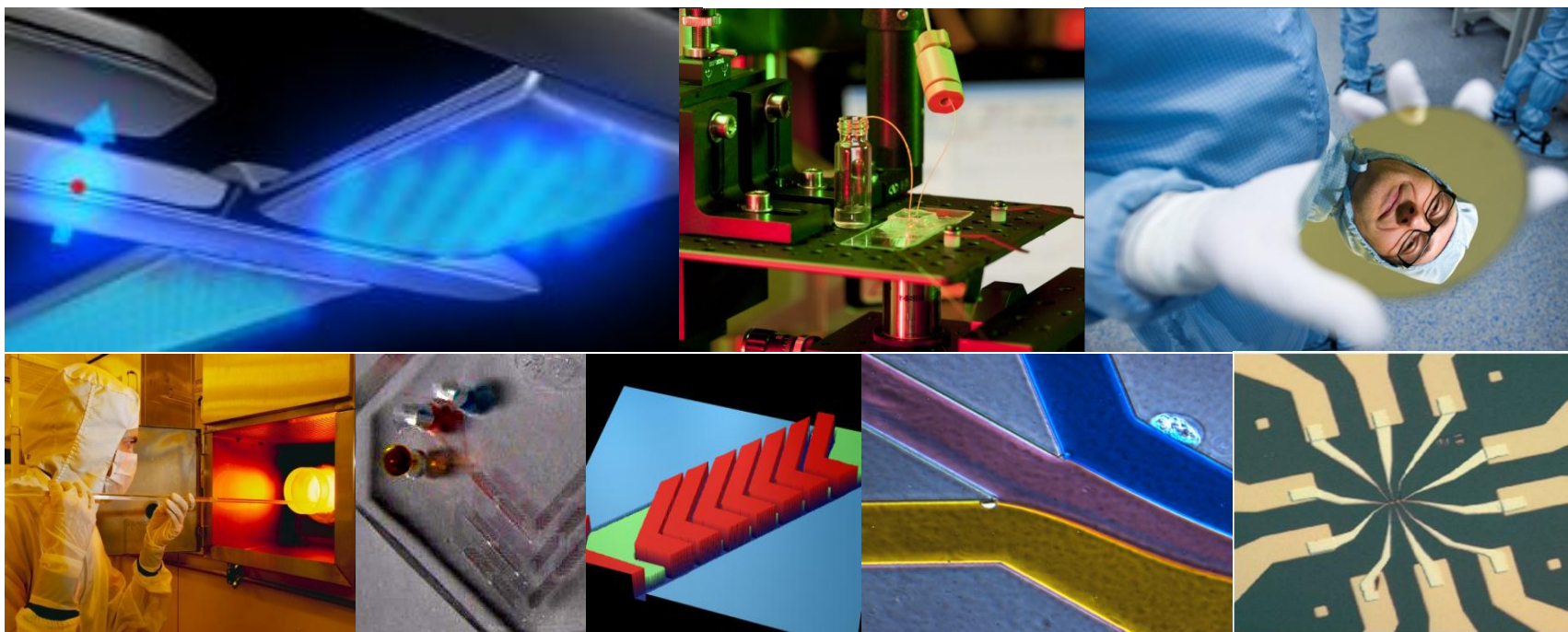


An Australian Government Initiative

National Collaborative Research
Infrastructure Strategy



Australian National Fabrication Facility



Washington DC, 30 April 2012

Rosie Hicks ANFF rosie.hicks@anff.org.au

The Australian research landscape



Australian Government
Department of Defence
Defence Science and
Technology Organisation



ANFF is an enabling platform

Identifying infrastructure needs

- Australia's investment in research infrastructure should be planned to maximise contributions to economic development, social wellbeing and environmental sustainability.
- Infrastructure resources should be focussed in areas where Australia is, or has the potential to be, world-class and provide international leadership.
- Major infrastructure should be developed on a collaborative, national, non-exclusive basis.
- There should be as few barriers as possible to accessing major infrastructure for those undertaking meritorious research.
- The Strategy should seek to enable the fuller participation of Australian researchers in the international research system.

Australian National Fabrication Facility



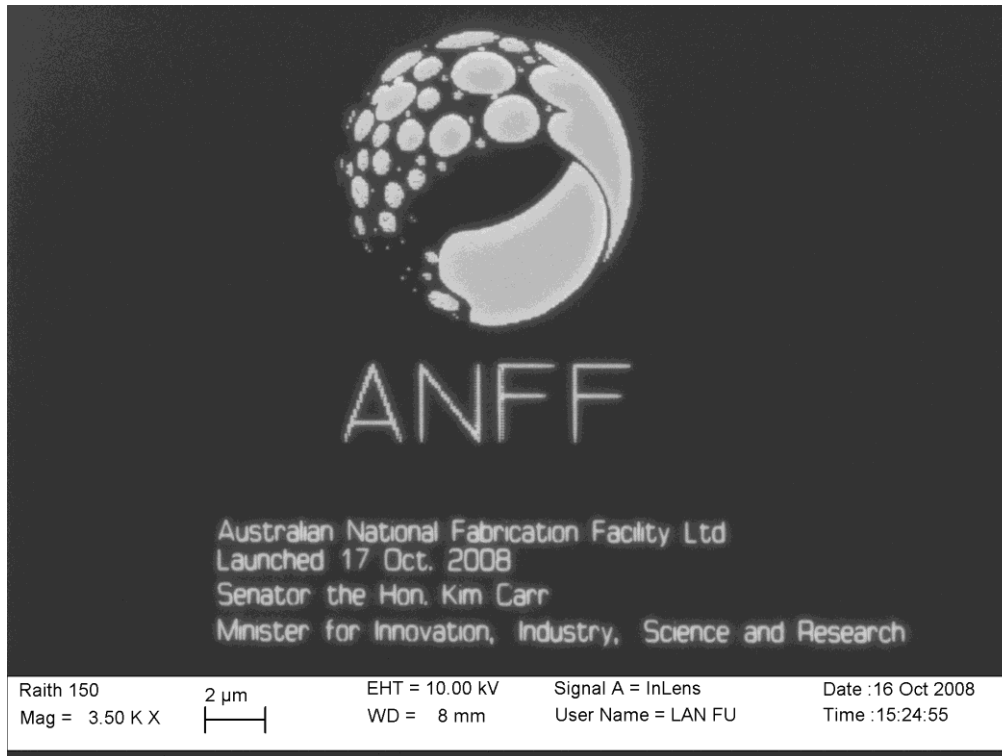
*A company established under NCRIS
to provide nano and micro-fabrication
facilities for Australia's researchers*



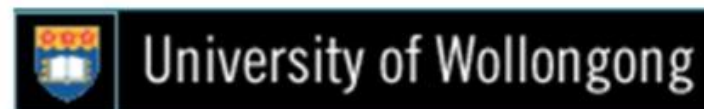
An Australian Government Initiative

**National Collaborative Research
Infrastructure Strategy**

Creating a national facility



- A collaborative network of **facilities** from universities across Australia
- Provides access to infrastructure & technical expertise
- Enables strategic investment over broad capability

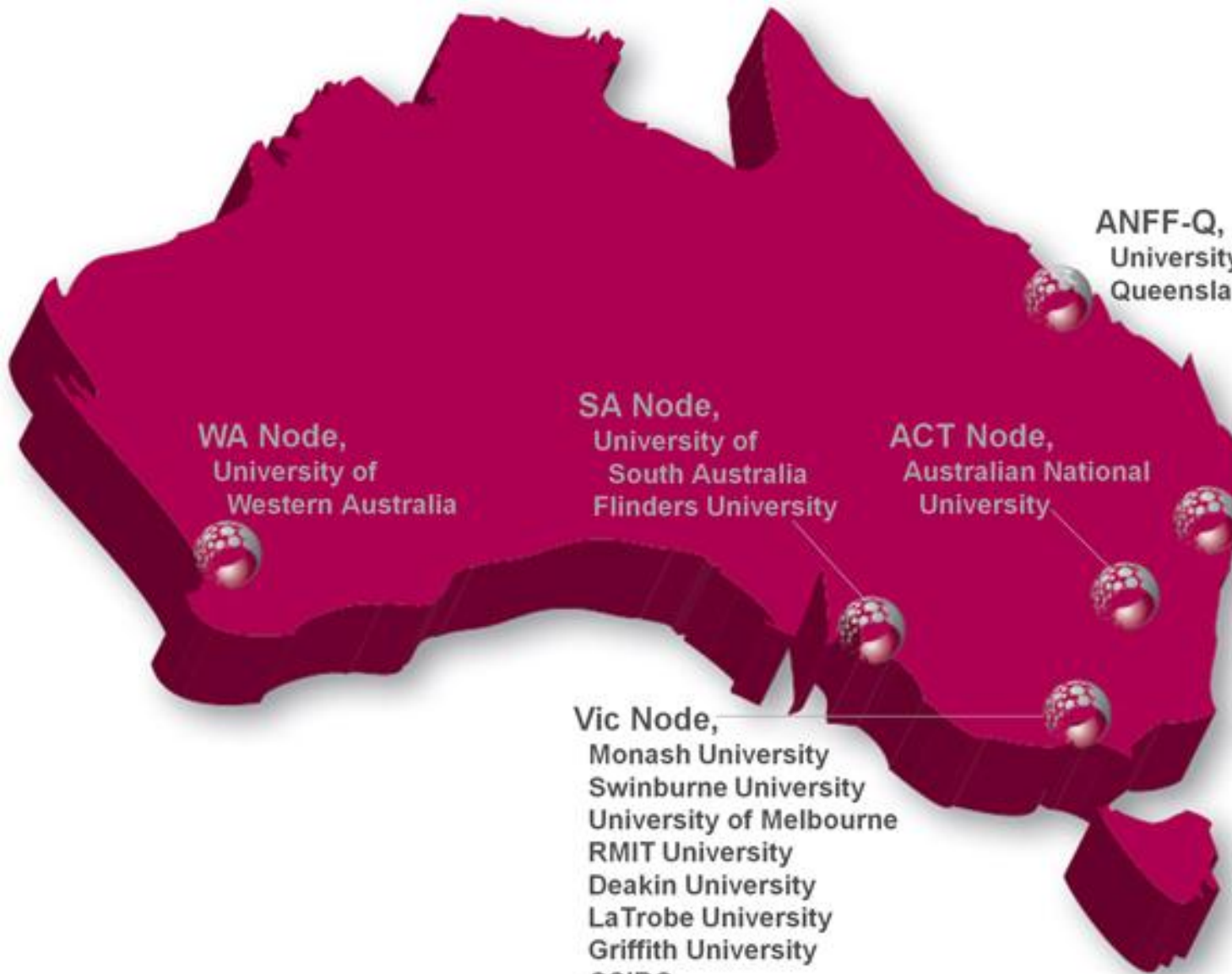


What is ANFF?



- \$41 m NCRIS & \$50 m EIF
- \$24 m State Governments
- \$10 m CSIRO
- \$15 m participating institutions
- Leveraging \$48 m in-kind
- International best practice
 - NNIN – US
 - INSPIRE – Ireland
 - EUMINA – pan European

Providing nano and micro-fabrication facilities for Australia's researchers



ANFF-Q,
University of
Queensland

Materials Node,
University of Wollongong
University of Newcastle

NSW Node,
University of NSW

OptoFab Node,
Macquarie University
University of Sydney
Bandwidth Foundry
International
University of Adelaide

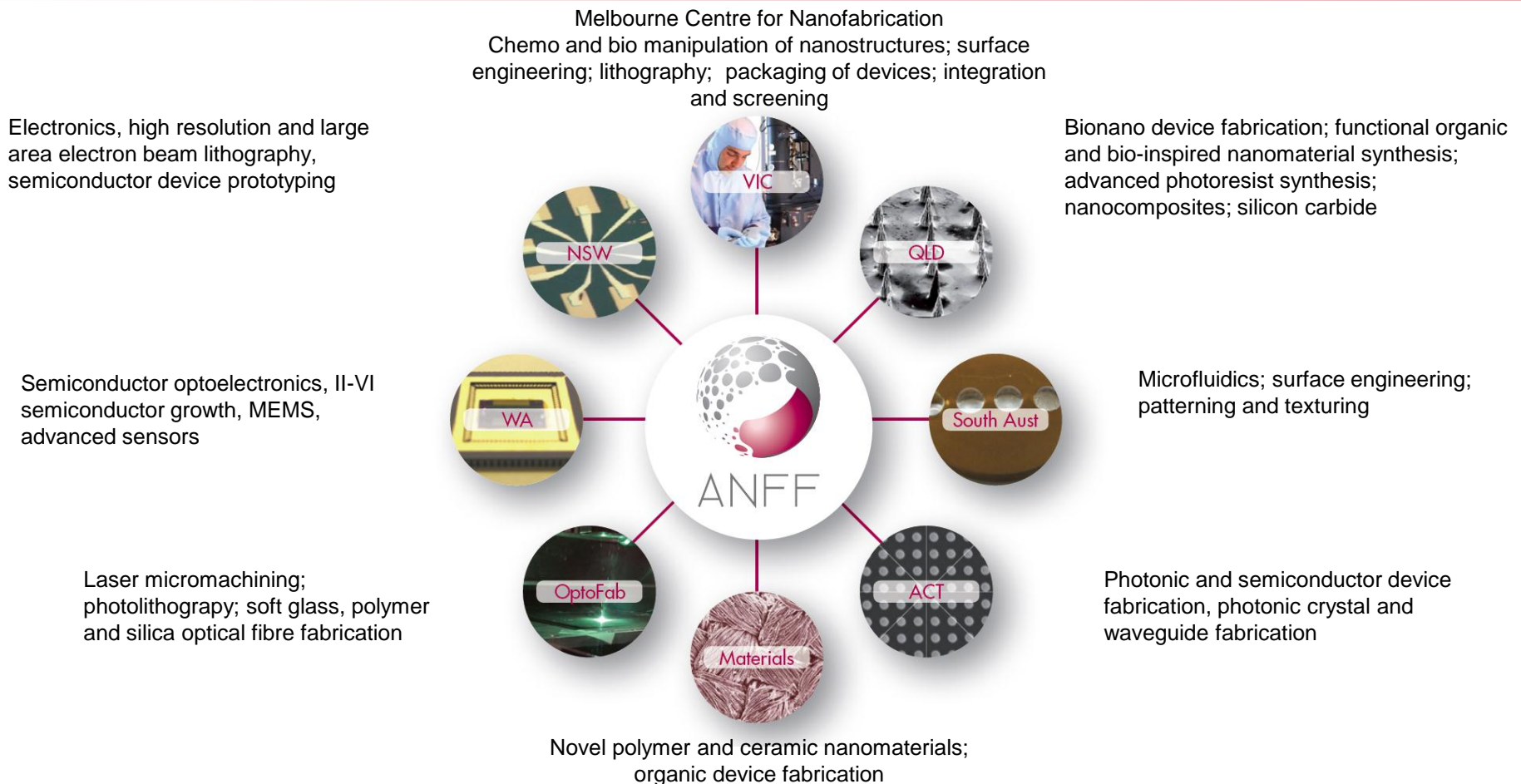
ACT Node,
Australian National
University

SA Node,
University of
South Australia
Flinders University

WA Node,
University of
Western Australia

Vic Node,
Monash University
Swinburne University
University of Melbourne
RMIT University
Deakin University
LaTrobe University
Griffith University
CSIRO

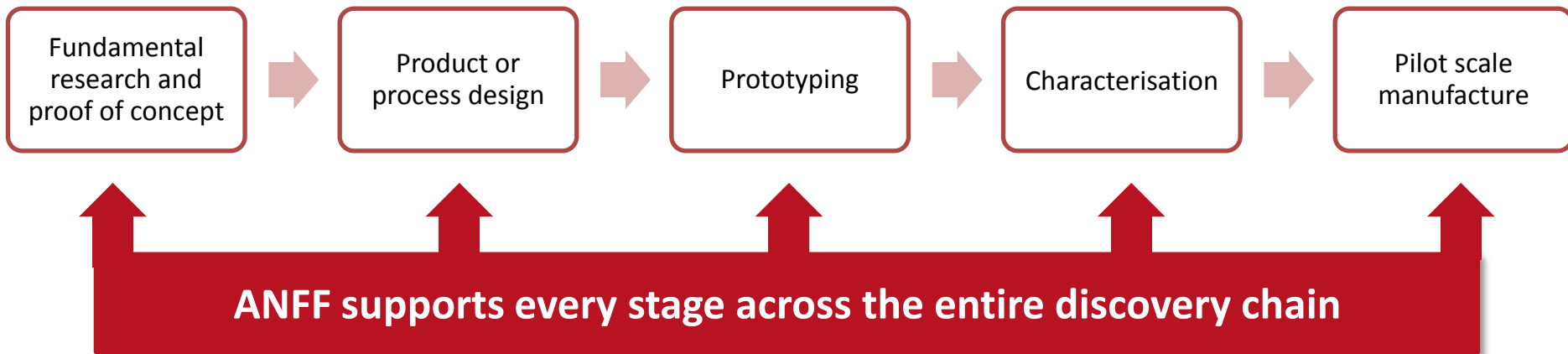
Around the Nodes



*Providing nano and micro-fabrication facilities for
Australia's researchers*

Supporting innovation – linking expertise

- Flexible tools for fundamental research
- Low risk access for initial investigations
- Pre-pilot production facilities



Process scaling



Pilot scale synthesis



Reel -to-reel printing

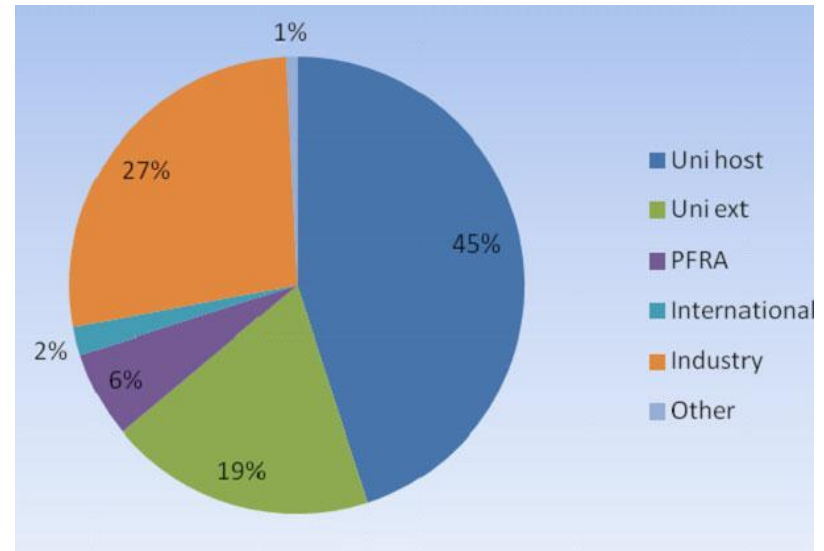
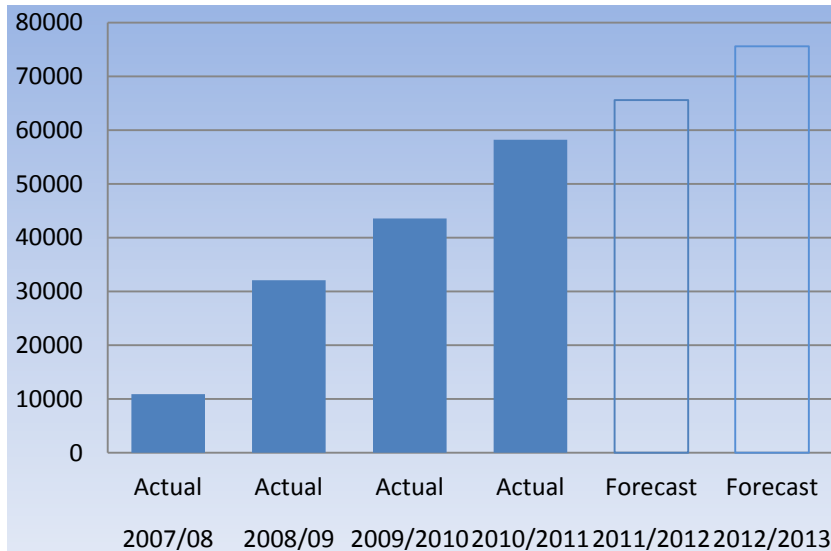


Ability to process large wafers



Fibre spinning

Supporting world-class research



Breakdown of users by project origin 2011/12



180 participants at the ICONN 2010 ANFF short course
"An introduction to nanofabrication techniques"

Supporting industry

19 industry linkage projects led by ANFF member institutions to start in 2011/12

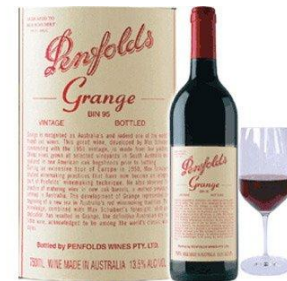
Process Innovation:

Ultrasonic production of skim milk

R Manasseh, S McArthur, P Juliano, R Mawson
Geoffrey Gardiner Dairy Foundation Limited

Smart bungs for wine monitoring

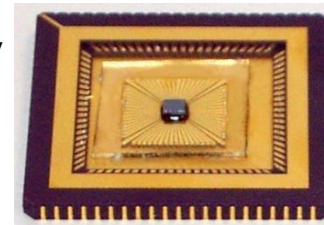
T Monro, J Thompson, R Gilchrist, A Abell
Fosters Group Ltd, Orlando Wyndham Group Pty Ltd, The Yalumba Wine Company



Product Innovation:

Adaptive multispectral imaging system for remote sensing applications

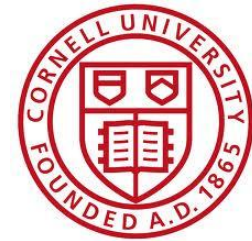
Faraone, L; Dell, J; Silva, B; Antoszewski, J; Basedow, R
Goodrich Corporation, ISR Systems



Deep-ultraviolet light source by frequency doubling of blue or green light for disinfection

de Sterke, C; Fleming, S; Eggleton, B; Duvall, S; Atanackovic, P
The Silanna Group

Supporting global collaborations



Acknowledgements



An Australian Government Initiative

**National Collaborative Research
Infrastructure Strategy**





ANFF

*Providing nano and micro-fabrication
facilities for Australia's researchers*