



Australian Government

Department of Defence  
Defence Science and  
Technology Organisation

# Collaboration and Innovation: Keys to Capability

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Chief Defence Scientist

DMTC Annual Conference 2015  
Shine Dome, Canberra  
18 March 2015

**DSTO**

Science and Technology for Safeguarding Australia

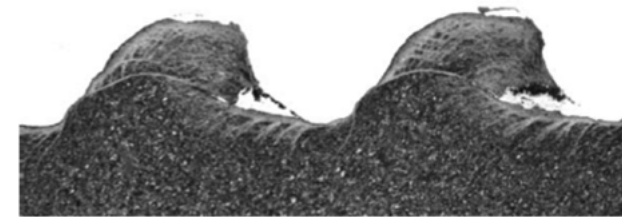
## Our New Focus

- Knowledge and innovation integration
- Strengthened by partnerships and collaboration
- DSTO ready to collaborate with the best wherever they are

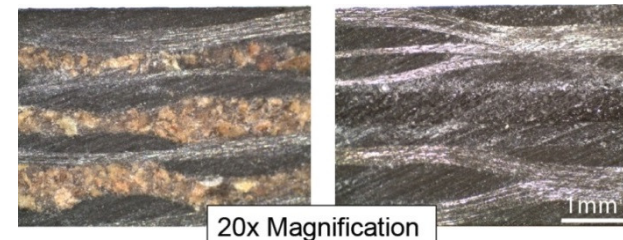


## Recent DSTO-DMTC Collaboration

- Vehicle Armour and Improved Manufacturing
- Next Generation Ferritic Armour for Vehicles
- Mechanical vs Welded Joints
- Advanced composite materials for naval components
- Biofouling characteristics of high oxygen oxy-fuel coatings

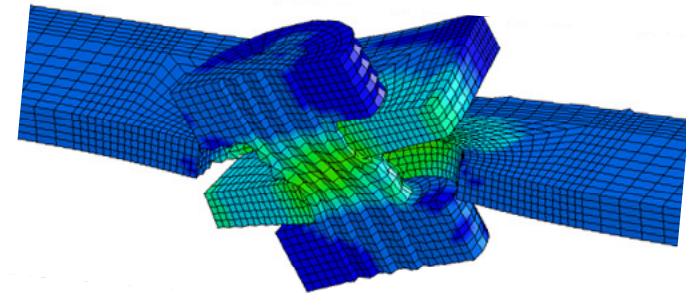


Explosively bonded steels produced by DSTO

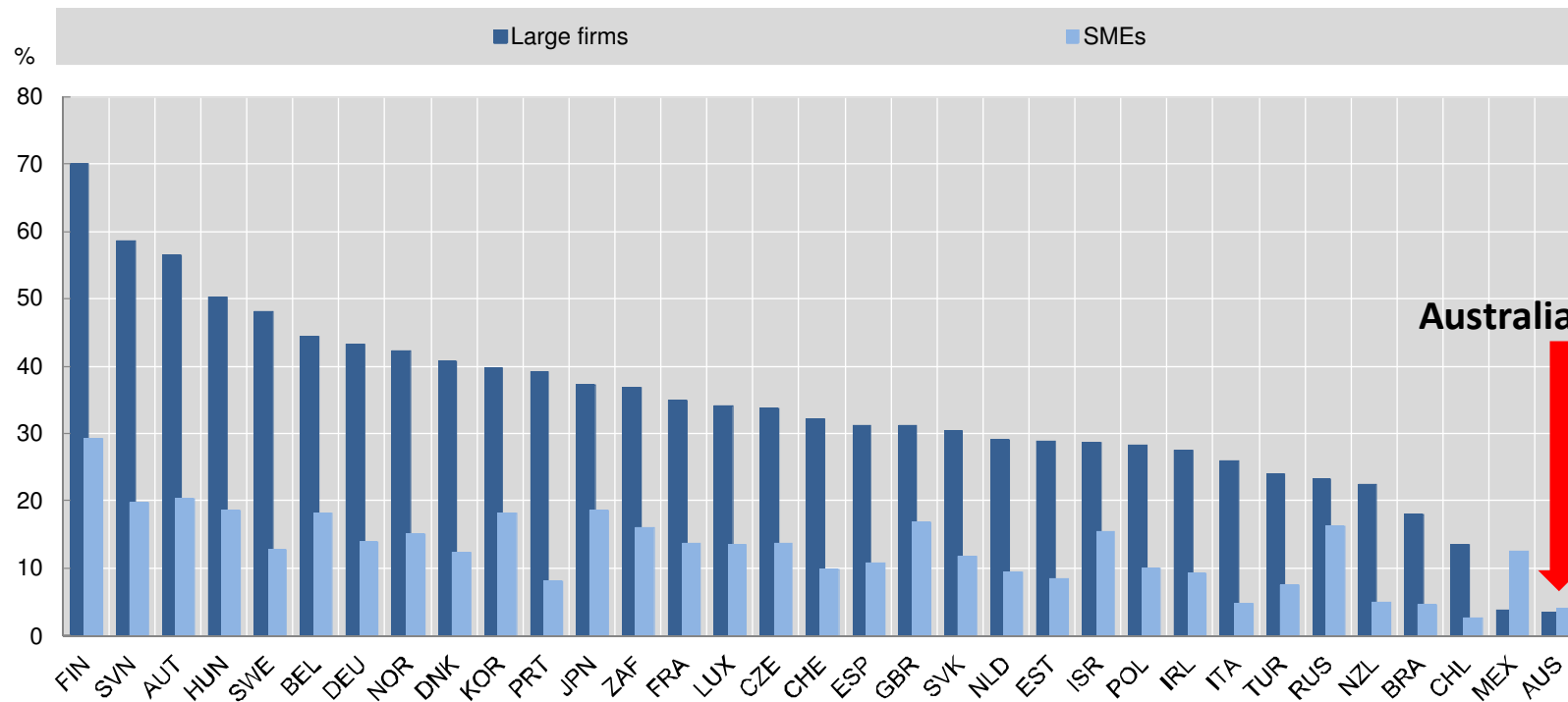


## Outcomes of DSTO-DMTC Collaboration

- Explosive bonding of armour steels – world first techniques demonstrated
- Comparative worldwide data on armour steels for land vehicles
- World class facility for laboratory testing of high-hardness armour materials
- New modelling project for soil characterisation and predictive modelling
- Low-preheat welding guidance to improve defence welding standards



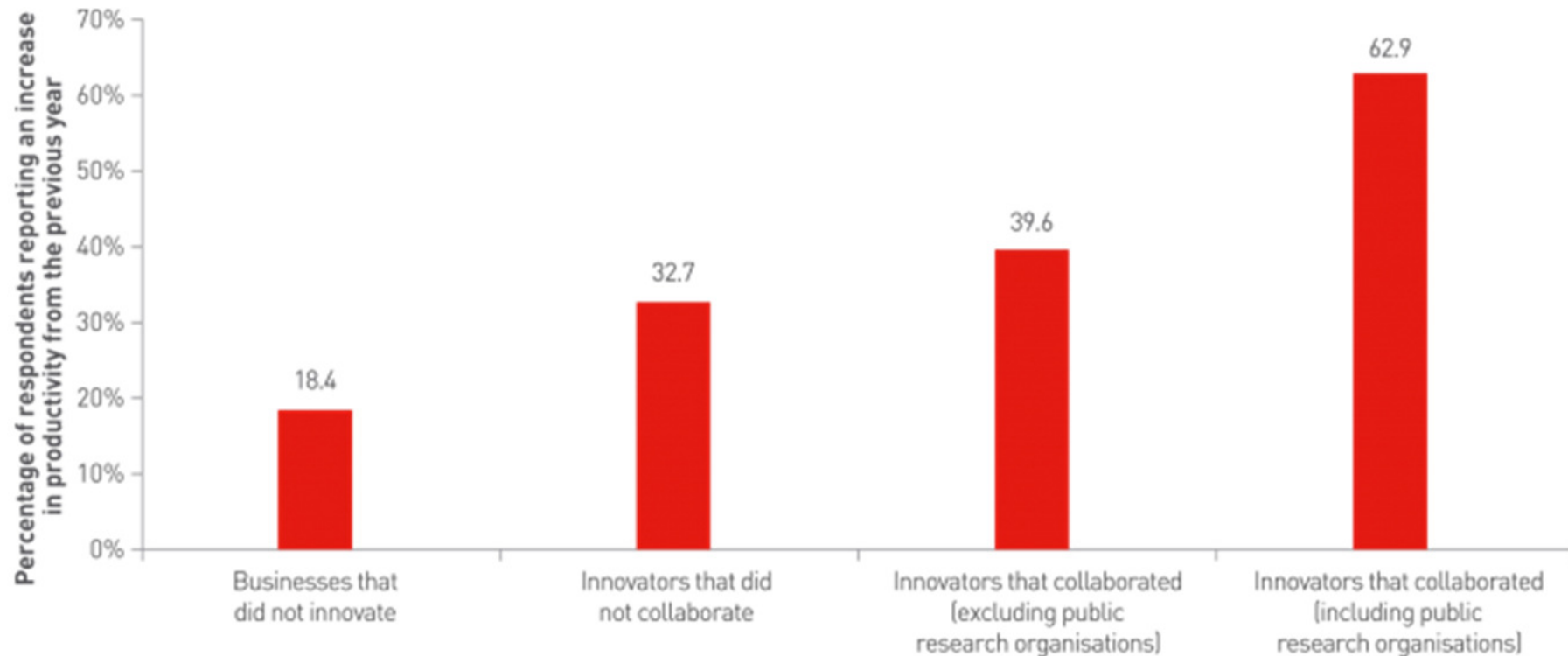
## Firms Collaborating on Innovation with Higher Education or Public Research Institutions (2008-10)



OECD Science, Technology and Industry Scoreboard 2013



## Effect of Innovation and Collaboration on Firm Productivity (2010-11)



Australian Innovation System Report 2013

Office of Chief Scientist of Australia



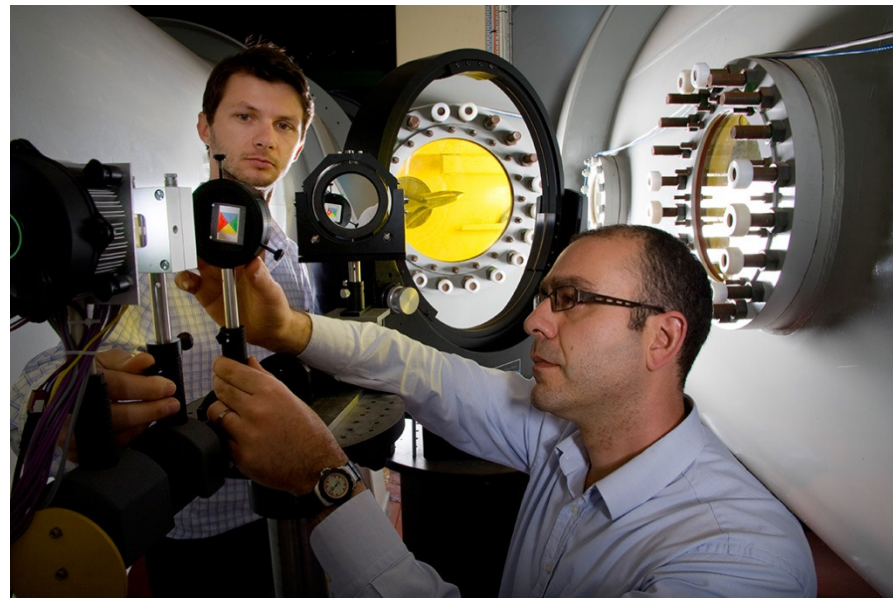
# Success Factors for Innovation

- Culture based on collaboration and partnering others
- Clear sense of mission and purpose
- Pool of highly-motivated staff supported with training
- Genuine team-based philosophy and work ethic
- Strong risk and performance management ethos
- Ability to orchestrate advances in a range of areas
- Development and use of incentives



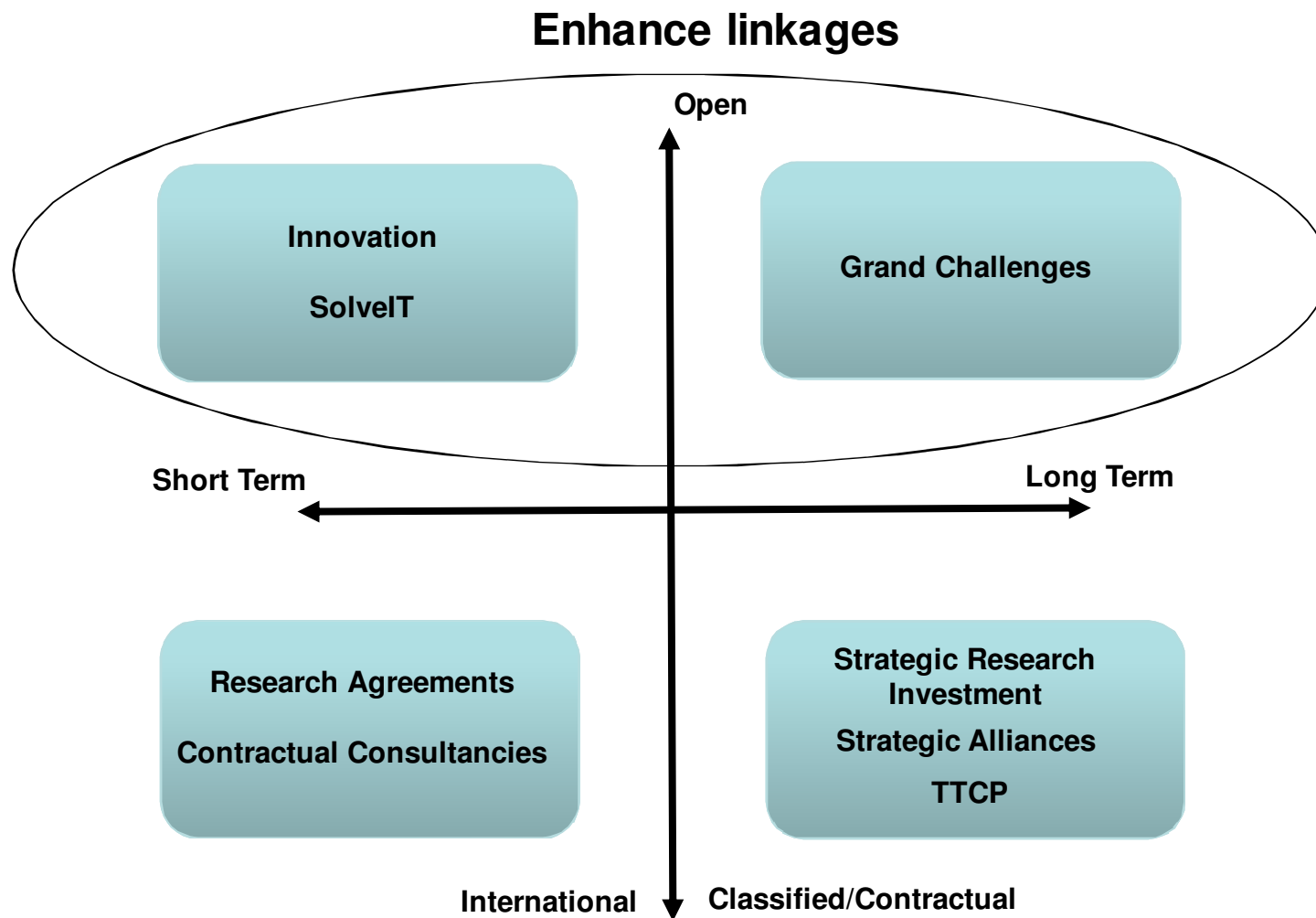
# Success Factors for Collaboration

- Strong relationships
- Long-term strategic approach
- Genuine partnership with co-investment, not a client-provider arrangement
- Specific roles and responsibilities
- Coordinated decision-making
- Certainty over the long term





# Models of Collaboration in DSTO



## Challenges in Collaboration

- COTS & MOTS - ability to modify or improve
- IP data <-> sharing
- International Traffic in Arms Regulations type requirements for overseas collaboration
- Mutual reliance
- Finding the value proposition/overlap of needs
- Maintaining the leading edge



# Recent DSTO Collaboration and Partnership Initiatives

- Strategic Alliances with 13 companies and PFRAs
- Streamlined partnerships with 25 universities



NORTHROP GRUMMAN



LOCKHEED MARTIN



THALES



SAAB



Australian  
National  
University



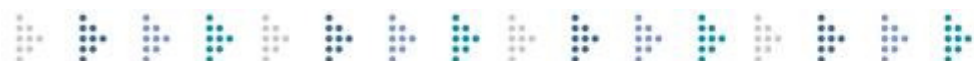
THE UNIVERSITY  
of ADELAIDE



THE UNIVERSITY OF  
SYDNEY



THE UNIVERSITY  
OF QUEENSLAND  
AUSTRALIA



DSTO

Science and Technology for Safeguarding Australia

# DSTO and International Collaboration

## DSTO collaborates internationally through:

- The Technical Cooperation Program (TTCP) – 5 eyes
- Bilateral agreements with US, European and Asian countries
- Collaboration in more than 60 technology areas across all domains

## Aim of international collaboration

- Develop capabilities cost-effectively
- Mutual reliance and interoperability



# Complex Defence Projects Need Collaboration



## Joint Strike Fighter F-35A

Multiple stakeholders/governments  
Complex innovative technology  
Complex system integration



## Wedgetail Aircraft

Complex innovative technology



## SATCOM

Multiple stakeholders & governments



## Air Warfare Destroyer

Complex system integration



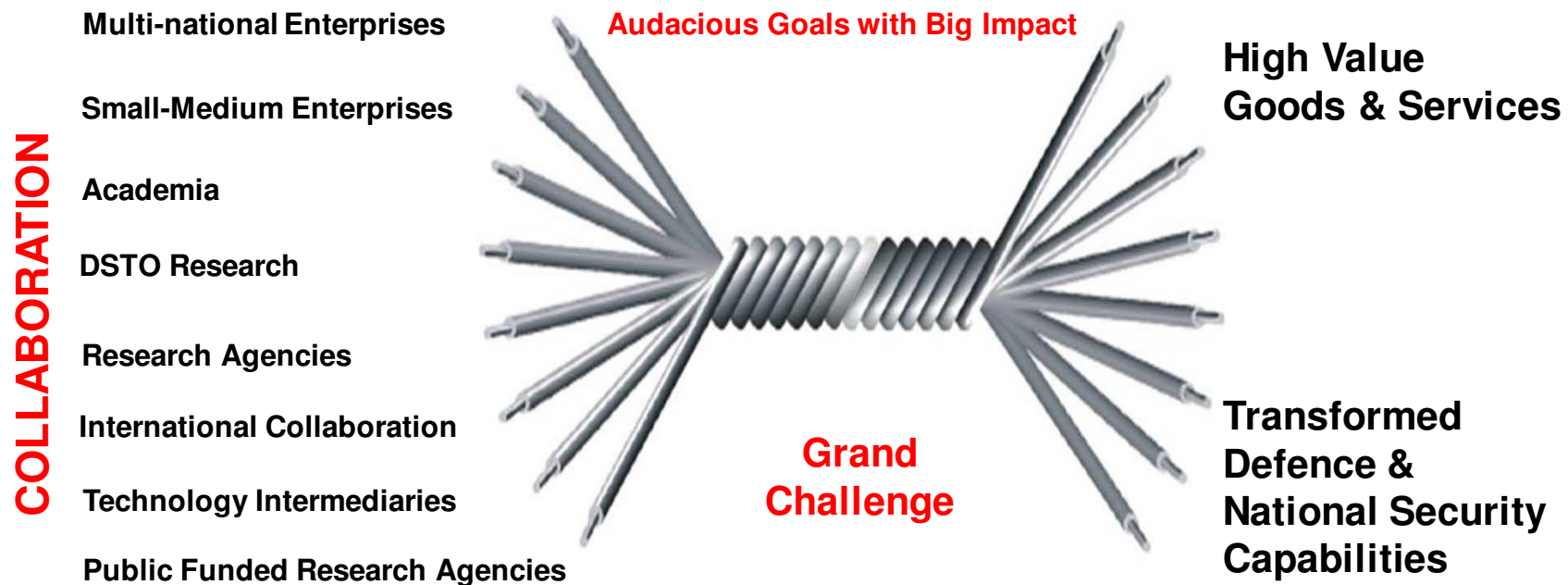
## Future Submarine

Complex government to government relationships



# Grand Challenges for Safeguarding Australia

- Audacious goals that harness science, technology and innovation to transform Australia's defence and national security capabilities



## Current Grand Challenge Themes

- Defeating Improvised Explosive Devices
- Securing Cyberspace
- Exploiting Space Systems
- Trusting Autonomous Systems



## CTD and DIRF Programs

- CTD proposals continue to grow
  - 96 proposals received for Round 19
- Seven proposals recommended for funding
- Announcement to be made shortly
- Successful proposals for Round 19 have come from SMEs and research sector
- Defence Innovation Realisation Fund - \$16.5m allocated for 6 projects
- Includes funding for DMTC to develop nano-structured fabrics for a chemical-biological suit.





## Defence Innovation Forum

- Latest developments – workshops held with industry and academia
- Next Forum (mid-2015) due this year after White Paper release



## An invitation to visit us



- 4-8 May DSTO Edinburgh
- Invitation on DSTO website
- Register your interest



## Looking Ahead

- Defence White Paper
- 10 Year Defence Capability Plan
- Defence Industry and Innovation Policy Statement
- These will provide greater certainty about Government's key priorities and timelines



Thank you and Questions

[www.dsto.defence.gov.au](http://www.dsto.defence.gov.au)

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