



Rationale for Australian Sovereign Manufacturing Capability

- There is an immediate need for an overarching incentive of national priority to drive creation of an Australian Sovereign Manufacturing Capability.
- The words 'sovereign' and 'capability' articulate national strength, purpose and resolve.
- 'Collaboration' is the third implicit dimension of this multi-functional conceptualisation that enables Australians to manage network relationships based on mutual trust, communication and commitment.
- Australians do not excel at collaboration except in times of dire national emergency and consequence. Australians are fearlessly competitive as a nation... on the global sporting field, amongst States, amongst universities and research institutes, and amongst manufacturers competing for market share.
- Australia therefore requires a vision for High Value Manufacturing that reflects both high levels of independence and an organisational framework to remediate the current collaborative shortfalls.
- Based on analyses carried out by Manufacturing On The Move™ [MotM™], and drawing on extensive E-media platform-sourced, policy inputs from industry and interaction with professional networks, capitalising strongly on SME attributes we make the following recommendations to deliver significant structural improvement to the Australian manufacturing environment.

Key points for consideration by Government

1. What will drive a significant increase in Sovereign Manufacturing Capability?
 - 1.1. A larger local market helped by federal procurement.
 - 1.2. Australian market a key proving ground leading to competitive positioning for accessible international growth markets.
 - 1.3. Creation of new products and/or improved processes preferably backed by strong IP.
 - 1.4. Reduced reliability on inbound supply chains for critical products and materials – rational import substitution.
 - 1.5. Investment in Industry 4.0 machine tools, advanced robotic and automated processes
 - 1.6. Investment in a highly skilled well-paid work force – making STEM career paths necessary, attractive, and ongoing.



2. What will drive a substantial increase in R & D investment in relevant products and IP?
 - 2.1. Two broad groupings brought together will substantially increase the R&D to result in new product realisation.
 - 2.2. The two groupings - Australian manufacturers (AM) and service providers (SMEs; locally based MNCs; majority Australian owned start-ups, and regional manufacturing hubs, clusters and networks) and IMCRC, AMGC and the other designated Government Growth Centres, Australian National Fabrication Facility, and Publicly Funded Research Agencies, (Universities; Medical Research Institutes; CSIRO; ANSTO, IP Group Australia, Defence, etc.), Accelerating Commercialisation.
3. How do we drive a rapid increase in this new product realisation process?
 - 3.1. Change the current drivers.
 - 3.2. Allow the AMs to drive the process.
 - 3.3. Require the publicly funded research agencies to cooperate.
 - 3.4. Incentivise with cash and vouchers.
 - 3.5. Appoint an Expert Advisory Panel (EAP).
 - 3.6. Strong composition of EAP.
 - 3.7. Assist with technological processes to ensure fast approval.
 - 3.8. Work with Austrade and trusted international partners to explore and identify global market gaps and opportunities.
4. Considerations
 - 4.1. Ensure probity of process.
 - 4.2. MotM and any other relevant organisation to assist in promoting the scheme.
 - 4.3. MotM to help AMs identify PFRA IP relevant to their new product/process/IP push.
 - 4.4. Use ATSE/MotM as intermediaries to identify research capability.
 - 4.5. Uncover the “Rembrandt’s in the Attic”.
 - 4.6. Get the background IP moving and into project IP with the AMs.
 - 4.7. AMs apply for creation of new products/processes/IP.
 - 4.8. Application identifies PFRA to assist with the creation.
 - 4.9. EAP reviews the application.
 - 4.10. Application approved.
 - 4.11. AM receives cash and voucher – cash for internal R&D; Voucher for PFRA R&D.
 - 4.12. Consider involving trusted international partners e.g., DARPA; Fraunhofer, selected UK Catapults, etc.
 - 4.13. Government invites PFRA to collaborate.

Pilot Program with the following model

Our proposal would bring together elements of very specific industry technology research currently housed in the CSIRO, ANFF and Universities in each state and territory under a new entity, 'The Collaborative Industry Research Framework'.

The specific technologies that would be initially addressed by the CIRF will be those characterised as underpinning the ‘physical’ domain of the Fourth Industrial Revolution;



- Autonomous vehicles
Advanced Robotics
- New Materials
- Additive Manufacturing (3D Printing)

Recognising as well the potential for interface with emerging technologies in the 'digital' (e.g. , 'big data' and 'Internet of Things') and 'biological' (e.g., bioprinting and biomedical).

The brief for the CIRF would extends from basic scientific research in material science to development and process technologies in all engineering disciplines through to their integration into manufacturing technologies.

Cooperation with industry via a version of the CRC-P would promote the transfer from research results to applications.

This Framework would also be able to bring in as partners other international research institutes and global networks such as Intelligent Manufacturing Systems (IMS).