> “It is through strong partnerships with Australian industry that together we can maintain and grow the capability advantage provided by our world-leading defence industry.”
>
> **The Hon Melissa Price MP, Minister for Defence Industry**

INDUSTRY CAPABILITY
Development

DMTC’s leadership of industry capability development and technology transfer activities closely aligns with Defence’s focus on increasing opportunities for Australian industry to contribute to sovereign defence capability outcomes.

The ICD Program is one of the best examples of the way in which DMTC engages all elements of the national defence industrial sector. This extends from Defence to other Commonwealth agencies, State Governments, national advocacy groups and other government innovation programs, as well as from primes to small businesses alike.

Given the workload and workforce requirements in defence industry in Australia in the next decade – in production but also in sustainment of platforms – regionally based industrial clusters are expected to have a significant role. Issues of capability (expertise, skills, quality, traceability) and capacity (demand, throughput, reliability of supply) must be addressed early to put Australian industry in the best position for future success.

In 2019-20 the ICD Program rollout was heavily focused on enhancing Australian industry’s welding capabilities, offering hands-on experience in working with the high-strength steel alloys used in both Land and Maritime defence domains. Activities across the financial year focused on regions in Victoria (Geelong), north-west Tasmania (Burnie) and New Zealand (Auckland). The expansion of the Program to include New Zealand companies aligns with Defence policy definitions of local industry content as being inclusive of both Australian and New Zealand businesses.

Participants uniformly report a range of positive outcomes, ranging from a greater understanding of the defence industry and its exacting standards to new technical knowledge. Several participating companies have won supply chain work both within Australia and internationally as a result of participation. In one case, a participant invested in new welding equipment allowing them to keep better digital records and enhance their internal Quality Assurance systems.

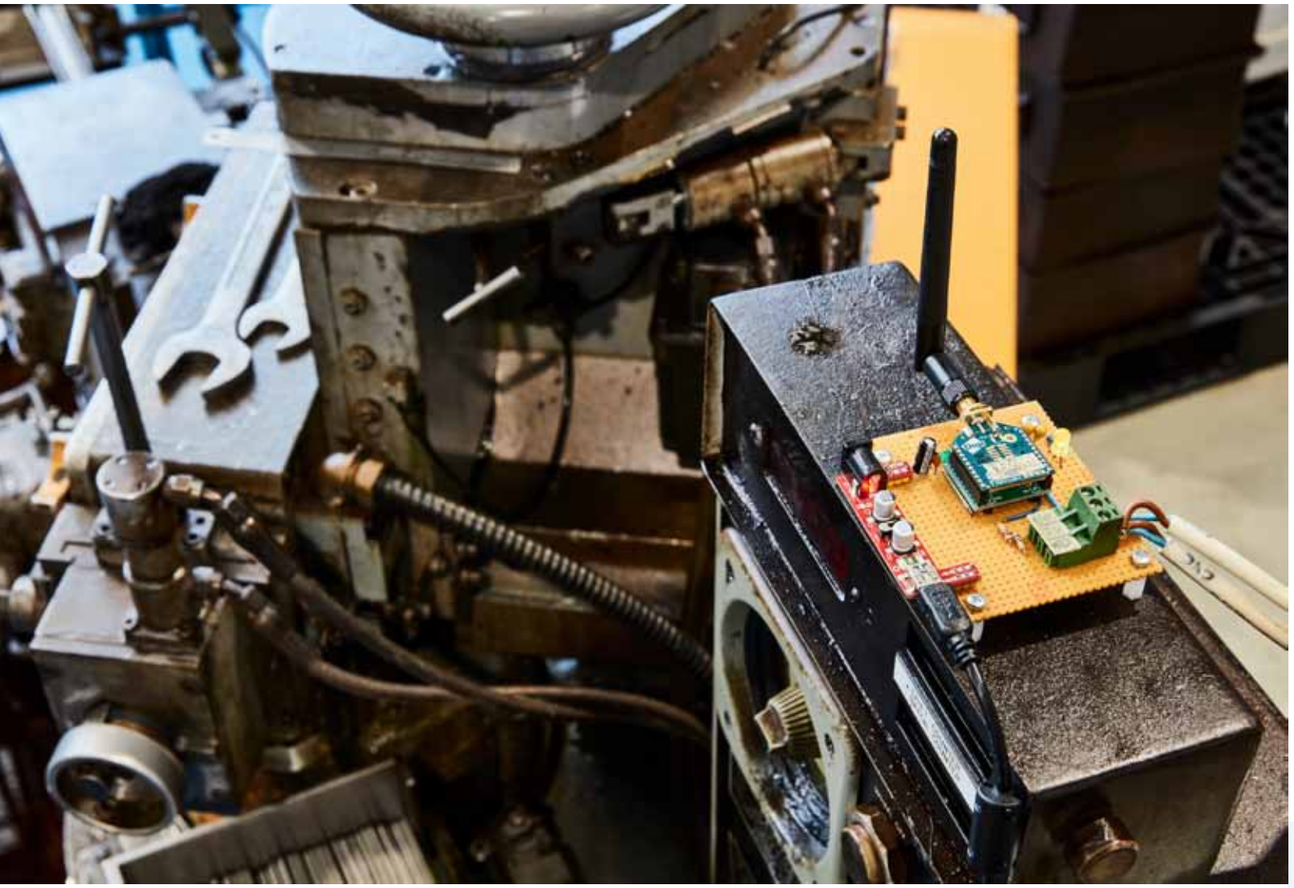
Another significant activity in the reporting year was a pilot with collaboration partner Cablex in Melbourne of a new Smart Enough™ Factory project, that seeks to introduce small businesses to new opportunities as a result of adoption of Industry 4.0 concepts. The Smart Enough™ Factory - supported by Sutton Tools, RMIT, AMGC and UQ - demonstrates that even modest process changes and advances in digital literacy can make their equipment ‘smart enough’ to collect performance data, improve traceability and inform decisions on investments in better ways of doing business.

DMTC’s ICD Program provides both process benchmarking and technological expertise to help these Australian companies to enhance ‘factory floor’ operating procedures and demonstrate their potential to compete for defence sector opportunities. It also provides an important mechanism for companies new to Defence to understand the characteristics of the sector such as market structure, project lead times, standards and accreditations and security requirements.

Adopting smart technology, even in iterative steps, can significantly enhance small business productivity. Real-time monitoring of production equipment can help address bottlenecks and data systems linked to production alerts can prevent wastage, reducing rework or reject rates and assist with Quality Assurance. Using simple cost-effective technology, companies can learn and adopt the fundamentals of Industry 4.0 in a way that is relevant to them and that improves the digital literacy of the entire company, from machinery operators through to senior management.

The DMTC team leading the workshops involves research partners from UoW, SUT, RMIT and UQ. Participants are strongly encouraged to seek assistance from the CDIC and relevant certification bodies. This broader business enterprise development advice complements the technical knowledge transfer and adoption of innovative manufacturing technologies through the DMTC program.

Experts engaged by DMTC provide mentoring and evidence-based feedback, both during the workshops and in post-activity reports, highlighting improvement opportunities for each company.



A key element of DMTC's Smart Enough™ Factory project solution is the ability to retrofit and integrate low-cost sensors across both legacy and modern manufacturing equipment. The concept is to offer a 'Factory in a Box' kit (the sensors shown on the right of the picture above, connected to legacy factory equipment at industry partner Sutton Tools) that provides a low-cost entry point to realise benefits of Industry 4.0 adoption for Australian SMEs.

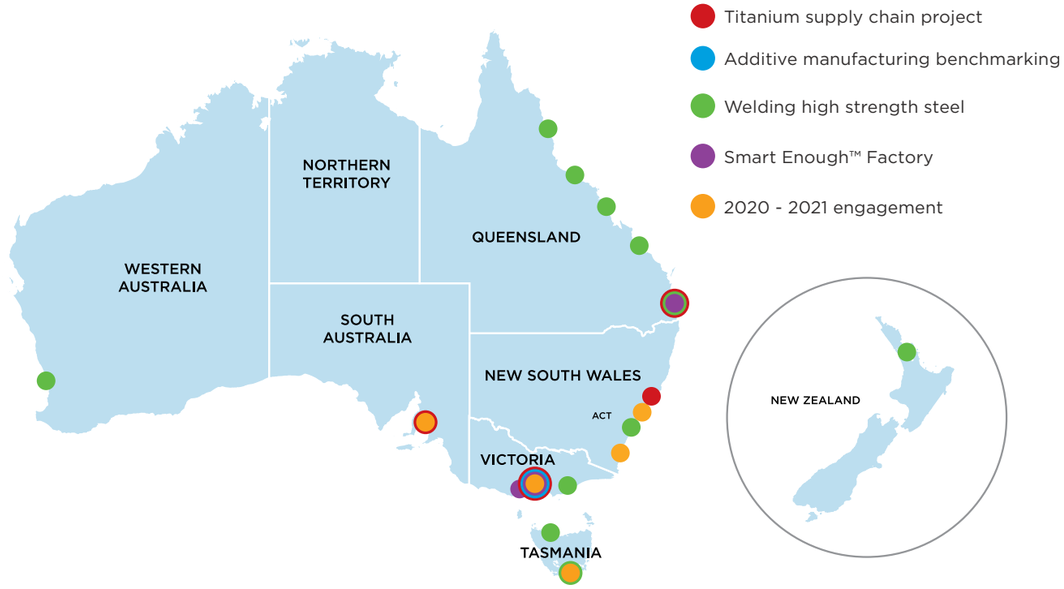
SUCCESS STORY

"The pilot project that Cablex has undertaken with the DMTC team has exceeded expectations, moving from proving the concept's merit to considering its value on the front lines of our production environment. The Smart Enough™ Factory kit provides a sensor overlay for existing machinery that benefits everyone from operators to managers and decision-makers. It builds on our company's experience with LEAN and 5S and provides a clearer picture in terms of production monitoring, visual dashboards and traceability.

Cablex is an Australian owned company servicing global customers and will continue to grow its local sovereign industrial capabilities to support Defence's needs. This project is helping Cablex to visualise future success and stay at the leading edge in providing customised Electrical Wiring Interconnect Solutions (EWIS) and electrical box build assembly solutions for our customers."

Paul Stokes
Project Director, Cablex

BUILDING SUPPLY CHAIN
Participation



LOOKING AHEAD

DMTC's investment and effort in support of industrial capacity-building continues to grow. The aggregate level of activity in this Program is on track to nearly double in 2020-2021.

Support will continue to be provided for benchmarking and technology transfer work in welding of high-strength steels, including in Western Australia. In addition, the Smart Enough™ Factory project will also be accelerated with rollout to small businesses in Brisbane and surrounds, the Shoalhaven and Geelong.

An additional area of focus in 2020-2021 and beyond will be in the area of next-generation additive manufacturing. Consultation with primes and small businesses has highlighted both opportunities and challenges in adoption of these technologies in a defence context. A critical element of DMTC's efforts is in moving past a narrow view of additive manufacturing as being 'only' about 3-D printing. In developing small businesses' capability and capacity in the production of complex parts for defence platforms, a holistic view of the production process is needed spanning 3-D printing, machine finishing, post-production processing and certification. Cost efficiency, minimising material wastage, production at scale and supply chain security are also key considerations. These projects will include trials of a range of emerging production techniques and post-production processing to verify component quality and mechanical properties.

Through the expansion of the ICD Program into new manufacturing technology areas and themes, DMTC is demonstrating its ongoing commitment to building the capacity and resilience of small businesses, many of whom have niche capability and untapped capacity to offer to defence prime contractors.