

## Commentary

# Australian Cooperative Business

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The fine chemicals industry including the pharmaceutical industry relies on academic university research as the driver to discover new methodology and reactions that can be transformed into industrial processes. Whilst in Australia industrial support for research remains scarce, the Cooperative Research Centres (CRC) Programme that was established in 1990 was designed by the Federal government to improve the effectiveness of Australia's research and development output. The sum of \$11.1 billion (cash and in-kind) was contributed by all parties. The challenge and objective is to connect researchers with business to focus R & D with innovative outcomes that can progress towards utilisation and commercialisation of research at an incremental and new industry level.

The CRCs are funded for up to 7 years to promote long-term strategic links and

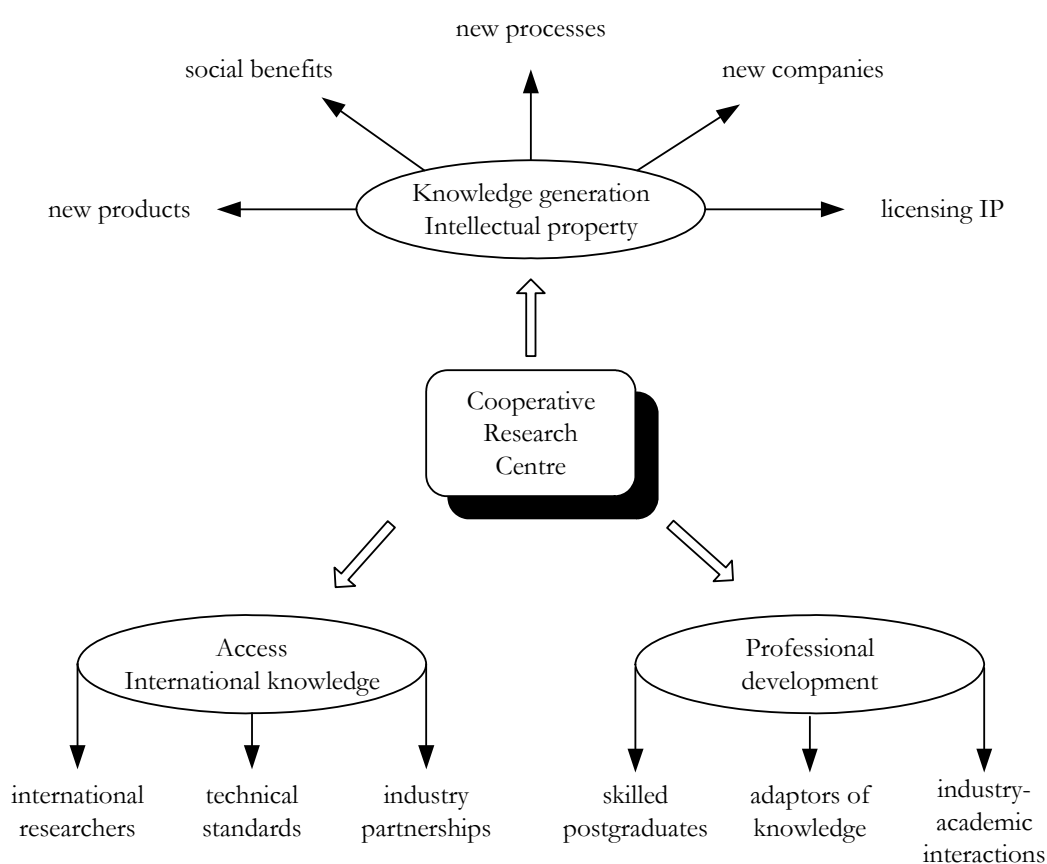
collaborations between industry, universities and government with the purpose to target the needs and requirements of industries to deliver benefits for Australian business. There are currently some 57 CRCs in operation, spanning manufacturing technology, information and communication technology, agriculture and rural based manufacturing, environment and medical science technology. New CRCs are being established so opportunities for business involvement are ongoing. Some of the benefits that the Programme can offer business are:

- Output of higher quality products, services and industrial processes leading to increased profits
- Collaborations and associations with leading researchers in Australia and the world
- Securing excellent scientific support to attract investors

- Opportunities to integrate with industry experts
- Employment of excellent graduates to develop business requirements and
- Professional development courses to sustain industry skill levels

A recent economic impact study of the CRC Programme that measured the net economic benefits for the economy between 1991 and 2010 calculated that the return to Gross Domestic Product (GDP) for every dollar invested in the Programme produced \$2.16. The Department of Education, Science and Training minister announced that the consequences of the research, training and commercialisation activities of the CRCs had resulted in an increase in the Australian GDP of around \$2.7 billion. The report has also revealed a number of other significant features of CRC operations:

- It is clear that successful CRC proposals must be genuinely end user driven.
- The last funding round (round 9) trend was to promote funding a smaller number of CRCs that were better resourced.
- The benefits delivered to the end user application of research were most significant even if it did not realise in the production of a direct commercialisation process.
- The time lag between commencement of a CRC and the delivery of measurable outcomes are around 5 to 10 years. Outside of CRC activities, research to market can take up to 20 years and this is one of the major impediments to attracting investors.
- It has been claimed that for every million dollars the Federal Government provides for research, the CRCs efforts produced at least twice as many inventions, patents and licences



**Figure 1:** Different directions, pathways and spheres of influence of CRCs are presented

as the overall university sector.

- The CRC brings focus to research work and in so doing generates 'industry ready' postgraduates to provide the skills necessary to sustain scientific industrial processes

Areas that CRCs have generated direct commercialisation of knowledge include: Capital markets surveillance services; CRC for Sensor Signal and Information Processing; CRC for Tropical Plant Protection: developing 'super fodders'; CRC for Advanced Composite Structures: maintaining Australia's stake in aerospace; Cotton Catchment communities CRC: managing pests and improving water efficiency; CRC for Welded Structures: cost reductions for industry; Australian Sheep Industry CRC: parasite management and precision production; CRC for Alloy Solidification Technology (CAST): delivering production cost reductions; CRC for Sustainable Aquaculture of Finfish: improving farming processes of Southern bluefin tuna; eWater CRC: reducing water infrastructure costs while maintaining quality; CRC for Sensor Signal and Information Processing Reduction of environmental impacts of industry and agriculture through high-tech control systems and CRC for Enterprise Distributed Systems Technology: Health IT software.

It is anticipated that in future huge economic benefits can be derived from CRCs by addressing the societal problems of the 21st century such as clean energy, biofuels, Alzheimer's disease when these are tackled not just in academia but in productive partnership with business. For such tactics and strategies to succeed the best talent/brainpower would have to be devoted to science and innovation supported by the best business brains.