DFCRC DIGITAL FINANCE CRC
THE FUTURE OF FINANCE

PROSPECTUS

Digital Finance CRC

This document outlines the opportunity to join the Digital Finance CRC.

We are a cross-industry, multi-disciplinary consortium bringing together a unique group of stakeholders in fintech, research, industry and regulation to develop and commercially exploit the huge opportunities arising from the next transformation of the financial markets.

Today, we are at the starting point of another fundamental transformation of the finance industry.

The revolution this time is not the digitisation of the interactions needed to exchange financial products, it is the digitisation of the financial and physical products themselves – into individual digital assets, certificates and tokens, which can be traded and exchanged directly and instantly between any individual or organisation.

This is what we call Digital Finance.

The DFCRC – a next generation CRC for the next generation global digitised economy.

The DFCRC is a 10-year, $180 million research program funded by industry partners, universities and the Australian Government, through the Cooperative Research Centres Program. The DFCRC's mission is to bring together stakeholders in the finance industry, academia and regulatory sectors to develop and harness the opportunities arising from the next transformation of financial markets – the digitisation of assets that can be traded and exchanged directly and in real-time on digital platforms.

Together we are building our reputation as a pivotal player in this new world by piloting and developing solutions through our:

- Globally leading use-inspired research focused on real-world problems and opportunities
- Collaborative commercialisation that pilots production systems
- Sustainable skills and leadership development programs.

The CRC program

The Australian Government's CRC Program supports industry-led collaborations between industry, researchers and the community. It's a proven way to link researchers with industry. The focus is on research and development that will have commercial uses.

The program aims to:

01. Improve the competitiveness, productivity and sustainability of Australian industries, especially where Australia is competitive and in government priority areas

02. Use high quality research to solve industry- identified problems

03. Encourage and help SMEs to take part in collaborative research*

**www.business.gov.au/Grants-and-Programs/Cooperative-Research-Centres-CRC-Grants*

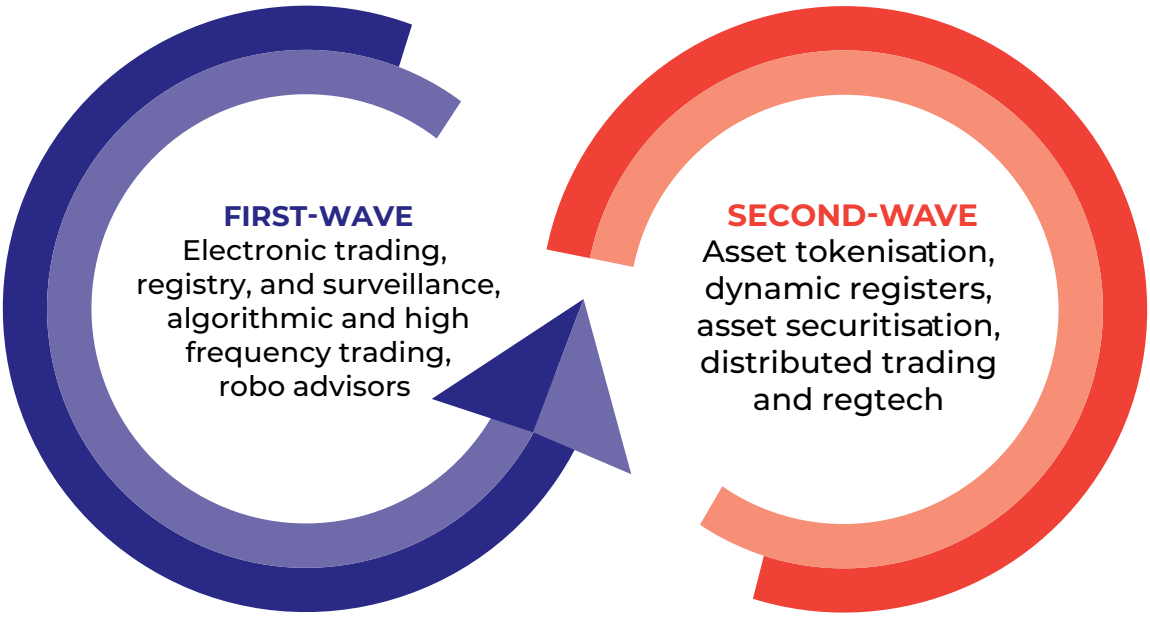
The second-wave digital financial revolution

When stock markets started moving toward automated trading 33 years ago, most experts saw it as a logical step toward improving the transparency, fairness and efficiency of these markets. This was in line with the stated objective of IOSCO, the world body of financial market regulators.[1]

This first wave digital finance revolution saw the economic contribution of the finance industry to Australian GDP increase from AUD 39 billion in 1986 to AUD 140 billion by 2016[2] and the nature of the industry fundamentally change, as did the nature of the discipline of Finance as a research topic. Both industry and research turned into data and technology driven enterprises.

Australia was at the forefront of this wave of new technologies and services, pioneering:

- The first automated registry business developed by Australian listed company Computershare
- The first automation of stock trading known as the Stock Exchange Automated Trading System (SEATS)
- One of the most widely used trading engines (known as Xtreme)
- The global standard in market supervision and surveillance technology solution SMARTS, developed by an Australian start-up together with the Capital Markets CRC and used by leading exchanges, regulators and brokers globally.



1. See Forward and Executive Summary of Objectives and Principles of Securities Regulation, 2003, IOSC.
2. https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/5204.02018-19?OpenDocument

The role of participants, technology and regulation in financial markets continued to change significantly over the following decades. Real time data analytics and artificial intelligence were used to manage regulatory and compliance obligations. The use of robo-advisors substantially reduced costs in the brokerage industry, and high-frequency trading surpassed traditional market participation, accounting for ~55% of US traded equities volumes[3]. Banks and other financial service providers replaced traders with technology, providing faster pricing across multiple platforms and trading venues.

Yet, despite these significant first-wave revolution changes, the core nature of today's marketplaces, for example, stock exchanges, is essentially unchanged. Exchanges remain a meeting of trusted intermediaries, with arranged lines of credit, who in real-time facilitate the exchange of purpose-registered assets, for their later actual exchange (settlement) at the end of the 'trading day' or some days later. This anachronistic and inefficient paradigm compels a new revolution - the universal digitisation of all tradeable assets to enable them to be traded, paid for, and exchanged directly and instantly between any individual or organisation. We are now at the crest of this second-wave revolution.

The fundamental transformation that the second wave revolution brings will change the definition and very nature of a financial marketplace itself, as producers and manufacturers will digitise their assets and look to sell them not only through established stock exchanges, but automatically through any electronic distribution channel available to them, in order to optimise returns. The ability to effectively exchange, or 'hand over', digital assets instantly and irrevocably changes everything about the workings and the potential of the financial 'marketplace'.

This transformation encompasses far more than technology issues alone. It includes wide-ranging changes to the current financial supply chain systems, structures and regulatory environment, all of which are no longer fit for purpose in the digital finance era. These changes will mean a new shape and form of markets, a new approach to regulatory enforcement, new financial technologies, and the next generation of financial services.

An asset-digitised financial world will lead to:

- **Distributed global marketplaces** operating 24/7 and exchanging digitised assets instantaneously
- **New capital supply chains** driving producers' and investors' profits through direct access to new market demand and competitive liquidity
- **Global competition for reliable and trusted investment environments**, underpinned by real-time algorithmic compliance and enforcement
- Entirely **new forms of economic activity** and interactions.

Recent developments, including blockchain technology, cryptocurrencies and smart contracts, are all important innovations that show much potential as key components for developments in the Digital Finance sector. However, while blockchain technology has helped with a widespread understanding and acceptance of tradable tokenised assets that will underpin the growth in Digital Finance, it alone will not enable the transformation.

In the financial industry, developments such as blockchain, smart contracts and cryptocurrencies reach their true potential only when effectively and appropriately capitalised in targeted applications with the complementary developments described in this proposal.

3. (https://www.sec.gov/files/dera-wp-hft-synchronizes.pdf)

The challenge

The challenge is to develop sophisticated ways in which assets can be created and represented digitally, so that they resemble individual physical assets – they cannot be duplicated, but they can be exchanged, and their individual owner can unambiguously be identified at any given point in time. This requires a new regulatory structure, new technologies, a new class of financial services, and a new shape and form of markets.

The Mission

The mission is to pioneer research and commercialisation for the emerging digital finance sector

The Vision

The vision for the Digital Finance CRC is to be a global leader in the development and capitalisation of the opportunities arising from the universal digitisation of all assets.

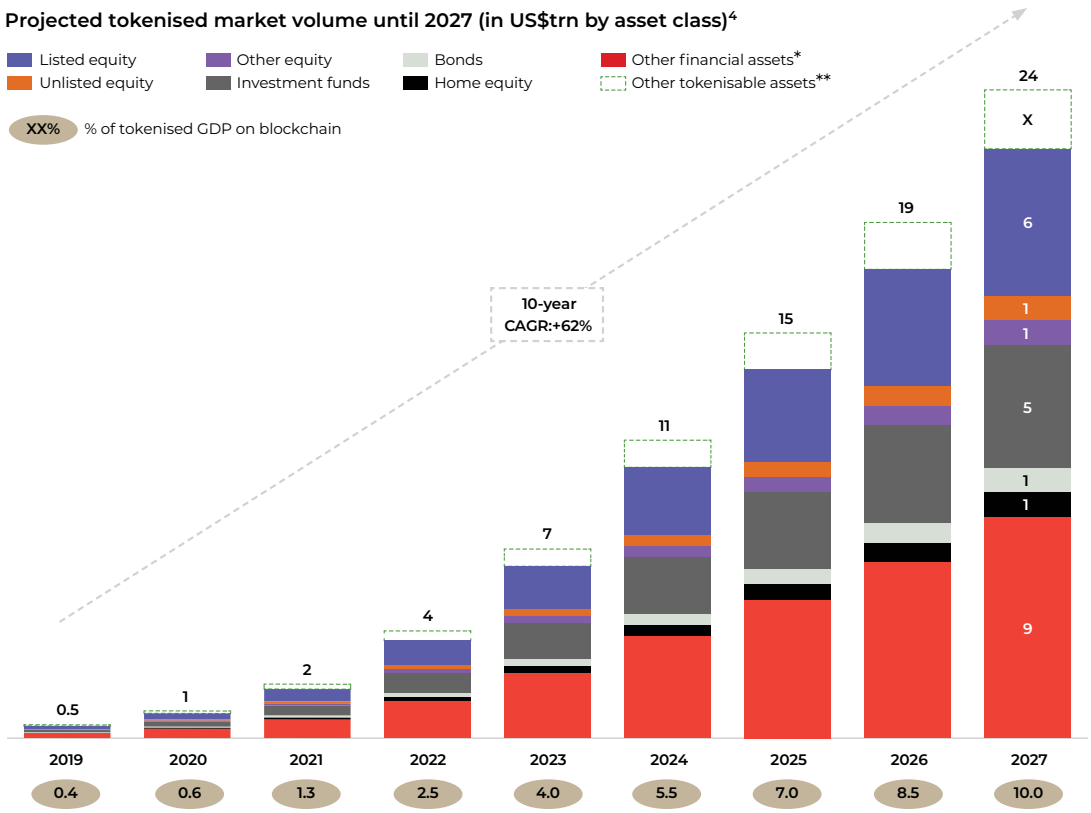
The market opportunity

The projected market volume of tokenised assets will grow fast from near zero now, to reach USD 24 trillion by 2027.

Analysts agree that the digitisation of assets, of which tokenisation is one form, and its impact, is at the beginning of an exponential growth curve that will lead to it becoming a significant component of the financial sector and economic activity.

Detailed analytic reports have investigated the different categories of assets likely to be tokenised first and the different industries likely to be impacted by the process. The terms ‘Tokenisation’ and ‘Blockchain’ are often used interchangeably in these reports. In some cases, the investigated impact goes beyond financial activities to other areas where blockchain and related technologies can affect significant beneficial change.

It is critically important to note that most of the stated benefits across virtually all impacted industries, derive from the better (more efficient and fair) financial transactions that are achieved because of tokenisation. We consider this new activity the new generation of financial services, and the scope of the Digital Finance CRC.



Beyond the staggering numbers in assets expected to become liquid through tokenisation, the resulting business value from new financial services, and other economic activity resulting from tokenisation and blockchain, has been assessed to be similarly significant, and to become a sizeable segment of global GDP:

> *"The combination of blockchain technology with other technologies, and the digital data underpinning blockchains, can add enormous additional economic value. Blockchain technology is predicted to generate an annual business value of over US$175 billion by 2025 and in excess of US$3 trillion by 2030."*
>
> – National Blockchain Roadmap Australian Government – 2020.

"Distributed Ledger Technologies (DLTs), such as the blockchain, have the potential to transform financial markets. From their most visible application in equity issuance and capital raising for small companies through Initial Coin Offerings (ICOs), to post-trade processes, clearing and settlement of securities, the technology has the potential to challenge the current construct of financial markets, affecting infrastructure and participants alike." – OECD report The Tokenisation of Assets and Potential Implications for Financial Markets, January 2020.[5]

4. The Era of Tokenization – market outlook on a $24trn business opportunity – Finoa.io – October 2018. SOURCE: World Economic Forum – Global Agenda Council 2015; Deloitte Research; BCG – Global Wealth Report; Oliver Wyman – Personal Financial Assets Report

** e.g. Insurance Policies, Pensions, Alternative Investments*

*** e.g. Infrastructure Projects, Car Fleets, Patents*

5. https://medium.com/finoa-banking/market-outlook-on-tokenized-assets-a-usd24trn-opportunity-9bac0c4dfefb

Capturing the opportunity

The sector-wide transformation requires new services, businesses, technologies, regulation and people.

The Digital Finance CRC will ensure that Australia plays a leading role in the next revolution of the financial markets through its transformative innovation.

At the heart of the bid is our world-class research program comprising leading researchers in finance, law, and technology combined with industry partners from established market players, Australian SME innovators and regulators. Working together, we multiply our innovation potential and will be in a position to pioneer new systems and scale them to global adoption.

The DFCRC is founded on a proven concept of tightly coupled, simultaneous research and commercialisation. This approach focuses on the active development of high-impact strategic projects in key components of the transformation to Digital Finance. It ensures the ability to adapt activities in response to the results achieved.

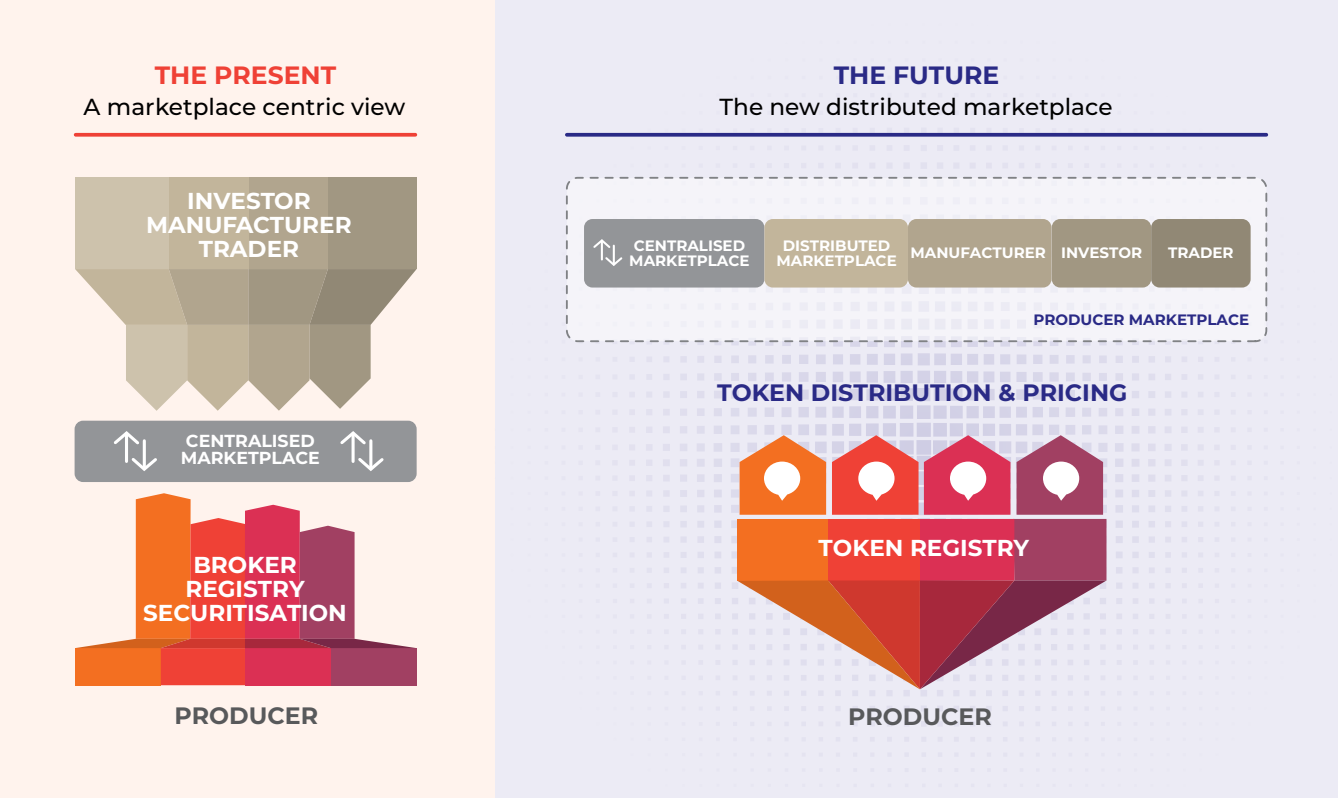
Our research orientation towards commercial reality delivers rapid results and maximises impact. The quality and rigour of the research work will lead to empirical findings that provide a solid foundation for decision-making, particularly in RegTech issues.

Our commercialisation approach is to develop IP in pioneering industry settings, focused on qualified market targets.

Our education and training program aims to create the next generation of leaders and experts for the new economy driven by tokenised assets. It is about building a bridge between industry and academia in our sector to achieve real and sustainable impact.

The proposed collaboration involving experienced and capable partners will research and develop solutions in the new areas of:

- **Dynamic registers for instant exchange:** New technologies aimed at enabling new digital asset registry approaches and 'activating' the legacy ownership registers and registries into real-time exchange facilitators
- **Advanced securitisation:** Turning more things digital. Building a research program for the universal digitisation of assets
- **Distributed trading – commoditisation of marketplaces:** Monitoring and analysing the distributed marketplace. Building next generation technologies and finance analytics for distributed, customised marketplaces for individual digitised assets
- **RegTech with algorithmic real-time enforcement:** Regtech engineering for the co-development of suitable regulation and rules, with technology for their real-time algorithmic compliance and enforcement. This drives the competitive advantage through regulation, vital to establishing trust in marketplaces.



We have ambitious goals that benefit all partners

Our industry, regulatory and academic partners contribute to every step of the production cycle from design to implementation of pioneering new digitisation, technology, financial services and RegTech solutions.

Together we can:

- Build new technologies to transform physical and financial assets into digitised assets
- Build and trial new business operating models underpinned by strong industry and academic research
- Develop operationalised regulatory structures for algorithmic real-time compliance and enforcement
- Build industry preparedness in a digitised finance sector defined by distributed marketplaces and capital supply chains
- Train a new generation of industry leaders
- Up-skill existing industries to thrive in the new digital finance structure
- Develop clear paths to commercialisation for new technologies, systems and business models.

Measuring our success

- **More control and greater returns:** Producers of goods, financial or physical, will have greater control to optimise their returns through direct access to liquidity and active participation in trading. Their advantage will be the ability to combine the position of a producer and issuer of digitised products and trader or market maker
- **Transforming cost centres to profit centres:** The historical back-office cost centres, such as the maintenance of asset ownership registries, become front-office revenue drivers with instantaneous digitised ownership transfers
- **Regulation as a competitive advantage:** Effective regulation and its enforcement becomes a competitive advantage as capital is attracted to high-integrity financial environments
- **New revenue opportunities for service providers:** A new generation of financial services will be required to support the new infrastructure of instantly tradable assets, including asset originators, AML/KYC providers, cross-border payment agents, asset managers, digital custodians, digital wholesale and retail venues, distributed optimised trading and market making
- **Increased economic activity:** With a substantial increase in immediately tradable assets, there will be a vast increase in the size and liquidity of economic activity.

What if you miss this opportunity?

The transformation will continue to happen regardless of who is involved. Organisations not at the forefront of this development risk becoming marginalised or, at best, becoming 'fast followers' progressively dropping further and further behind.

- Incumbents will risk losing their leadership position and clients while witnessing their brand value diminishing through disintermediation
- Fintech services providers who fail to adapt to the changing landscape and processes involved in asset transfer will quickly become obsolete and be replaced
- Regulators risk losing control of the integrity of their sovereign marketplaces, which will see a reduction in activity and liquidity and an increased risk of bad actors
- Producers and manufacturers of goods risk limiting their access to cheaper capital markets, reducing their financial position in the market
- Those who don't upskill or engage with the new breed of leaders will be marginalised as their historical product offerings become dramatically outdated.

Benefits to coming on board

Financial Services – To drive a leadership position with new classes of products and services that seize new opportunities and avoid disintermediation.

Universities – To work with a unique stakeholder group addressing real-world opportunities, generating post-graduate research opportunities for students and enhancing global reputation.

Producers of Real Assets – To optimise financial returns from production through direct access to the new capital supply chains leading to more transparent, fairer and efficient markets with lower overheads.

For example, through the digitisation and active trading of their production, mining and manufacturing can improve the performance of their distribution and the effectiveness of their capital supply. This will require developing management skills to take advantage of the new Digital Finance environment.

Technology Developers – To build and sell globally- relevant algorithms, systems and processes informed by advanced research into the evolving digital finance sector.

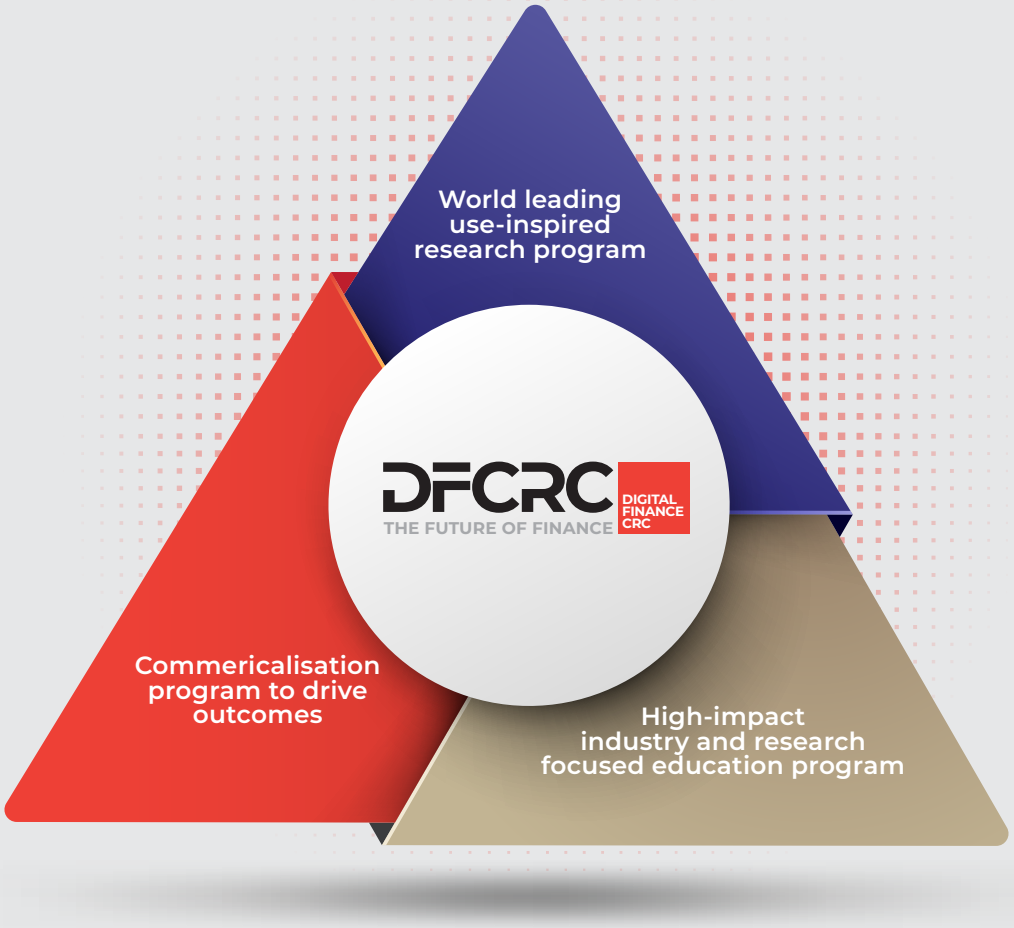
Regulators/Legal Experts – To actively and positively shape an algorithmically driven regulatory framework for the next generation of financial markets. To develop the skills to lead regulatory governance in and for a distributed real-time trading environment. Participation can also help facilitate the appropriate regulatory structures and systems to build trust and reliability into the regulatory framework – upfront.

"The opportunity for banks is to leverage their position of already having payments, identity and trust assets in place as new infrastructure comes on-line. Banks can leverage their capital, customer bases, and brands to expand rapidly in partnership with fintechs that can help fill gaps in banks' channels, product sets, and processing capabilities."

– World bank*

**http://documents.worldbank.org/curated/ en/750421502949470705/pdf/118736-BRI-EMCompass-Note-42-DFS-Challenges-and-Opportunities-PUBLIC.pdf*

An integrated approach to developing the new infrastructure for Digital Finance



An industry and research-focused education program

Industrial PhD	Industry-linked theses and scholarships	Digital Finance MBA and certificates
An advanced PhD program addressing the big research challenges for the newly emerging Digital Finance sector and industries impacted by this innovation.	A senior undergraduate program to turbo-charge your practical understanding of Digital Finance and provide early access to leadership candidates.	Digital Finance - focused programs for a wide range of industry participants to build leadership skills for digitised marketplaces. Programs focus on reskilling or upskilling the existing workforce.

Research on key drivers in the new finance world

The DFCRC has identified four initial high-impact research streams.

RESEARCH STREAM 1:

Dynamic registers for instant exchange

New technologies aimed at 'activating' the legacy ownership registers and registries into real-time exchange facilitators.

The first major step required to transform financial markets is the digitisation of the registry. The registry is traditionally a bookkeeping and communication function, tracking who owns shares in companies and communicates with shareholders.

In the Digital Finance world, this changes entirely. When digital assets are created, issued, traded and settled in real-time, the registry becomes the centrepiece of all transactions. It becomes the most critical and strategically important piece of all trading infrastructure. It is required for all marketplace activity, and may even become the marketplace itself.

The registry in this context is not necessarily a separate commercial entity, although it could be operated as such. It could also be operated by producers and manufacturers as the securities issuers themselves, or in different scenarios by any of the aforementioned parties.

Research stream 1 will:

- Develop and test projects where the new strategic functions of the registry are built-out, tested, and scaled, in realistic or pilot market trading scenarios.

RESEARCH STREAM 2:

Advanced securitisation – turning more things digital

Turning more things into instantly tradable digitised assets. Combining legal research with technology research, including smart contracts and smart titles to address this core challenge.

The second key tenant of the Digital Finance transformation is the conversion of ever more assets into digital securities, and the increased liquidity of these assets. This includes, for example, the creation and fractionalisation of digital ownership titles to physical assets. It also includes an increase in the creation and ubiquity of purely digital assets and 'meta-assets' like pooled investments and managed funds. Key here will be the assets and enterprises of SMEs that, as a result of the cost of traditional exchanges, have not had access to the key benefits of a marketplace, namely, transparency, fairness and efficiency.

Research stream 2 will:

- Investigate, measure, and track the creation of new assets.
- Pursue strategically targeted asset creation and pilots based on the most promising candidates, which will achieve the highest impact as Digital Finance pioneers in the development of this market.
- Develop projects that seek to evolve national and international regulatory frameworks and securities laws, in particular, the areas of digital title and their exchange forms.

RESEARCH STREAM 3:

Distributed trading – commoditisation of marketplaces

Monitoring and analysing the distributed marketplace. Building next generation technology and finance analytics to service distributed, customised marketplaces for individual tokenised assets.

With true digital or digitised assets, the principal function of a marketplace becomes very simple – it is to facilitate the real-time exchange of one set of digital assets for another. Such marketplaces no longer need conventional lines of credit and the burdensome protocols required to establish trust between a marketplace and its participants. Clearing and settlement becomes an instantaneous part of the digital asset exchange.

In turn, reducing the barriers to setting up a marketplace or exchange creates the potential for individual exchanges to become commoditised. A counterpoint to this commoditisation trend is the need for regulation, supervision, and operational certainty in new financial markets. Regulation is not just a requirement from a government perspective, it is in the best interest of market participants. History shows that completely unregulated markets lead to many levels of irregularities and to the ultimate detriment of an honest participants.

From the perspective of an issuer as well as an investor, the financial 'marketplace' will increase to become a distributed marketplace of many individual venues to source or distribute digital assets.

This research stream combines empirical observations, active development and trialling of technologies, processes, and suggestions for operational improvements of the distributed marketplace.

Research stream 3 will:

- Develop projects that aim to measure and compare the quality of markets in terms of individual venues and the quality of overall distributed markets for individual asset classes.
- Develop projects that directly advise or provide technology for stakeholders in the new marketplace environment, to sensibly facilitate the transition to Digital Finance, and remove the barriers to its accelerated development.

RESEARCH STREAM 4:

RegTech with algorithmic real-time enforcement

Combining legal, regulatory and technology for algorithmically enforceable rules and regulation, and the technology to monitor and enforce in real-time.

The instant transfer of assets requires rules and regulations that can be enforced as part of the transfer itself. This requires a different approach to regulation. Compliance needs to be verified at the time of processing the transaction; if the necessary regulatory requirements are not met, the transaction is rejected. This is the only efficient way a regulated real-time exchange of assets can work because rolling back transactions will be either impossible or technically difficult and operationally expensive.

The current governance-based approach, which states intentional rules and relies on case law for enforcement, is no longer adequate for the new real-time environment.

Algorithmic real-time enforcement provides a solution to this challenge. In the 'Active Registry' paradigm from Research Stream 1 the centre-point of such enforcement moves from the exchange to the registry. This enables proactive compliance with rules and regulations as a precondition to any digitised asset transfer. With enforced integrity, proactive compliance with rules enforced by the registry can automatically apply even if the targeted asset exchange transaction is initiated in a different geographic legislation.

Research stream 4 will:

- Develop algorithmically enforceable regulatory frameworks by building regulatory integrity into the systems upfront.
- Advance true RegTech through collaboration between operational technology and regulation to identify the regulatory requirements for the new assets and marketplaces.
- Pioneer pilot systems together with regulatory and legal experts to provide direct exposure for regulatory participants to operational problems, and vice versa to develop practical solutions.
- Develop transition programs to plot a path on how to move from where we are to where we need to be.
- Build analytics to service a Regulatory Decision-Making Framework that will produce a new class of analytics for insights into emerging distributed marketplaces from a regulatory and legal perspective.

A commercial approach to drive outcomes

With the research agenda shaped around new commercial challenges, our commercialisation approach is shaped by the challenges our industry partners face and designed to drive real-world solutions..

This will be achieved through:

- **Industry collaboration** – Working with real-world developments and exploring opportunities that will have impact
- **Pilot programs** – Developing pilot programs, systems and technologies to optimise the commercial opportunities arising from the research
- **Commercial analysis and insights** – Developing and framing a new breed of data sets to drive informed decision-making for participants, service providers, fintech and RegTech developers to build commercial solutions
- **Entrepreneurial guidance** – Working with those who have done it before!
- **Global networks** – Tapping into the global industry as it develops, gaining insight into opportunities for the DFCRC's research and technologies.

Advisory group

Dr Andreas Furche
CEO, Digital Finance CRC

Andreas Furche is a fintech researcher and entrepreneur with a long-term passion for the tokenisation of financial assets. He has been involved in developing research-based financial technology start-up companies for more than 25 years in Australia, the US and Europe.

His journey to Digital Finance started with his involvement in digitised cash in the mid-1990s, as regional CEO (A/P) of David Chaum's DigiCash, which created the first-ever cryptocurrencies. After becoming hooked, Andreas completed a PhD on the subject, developing a model for the tokenisation of financial assets and their digital circulation (Macquarie University, 2000).

Moving into electronic trading technology, Andreas became a Partner in Sydney start-up Electronic Trading Concepts (later acquired by Securenet, now part of the global Verizon business). In 2003 Andreas helped develop and grow SMARTS, where as CEO, he led the growth of the business into the world-leading market surveillance technology company and its later acquisition by Nasdaq. After working for Nasdaq in NewYork, Andreas returned to Australia in 2011.

Andreas has significant experience with R&D in a CRC context. He developed the original commercialisation strategy of the Capital Markets CRC in 2003, was an industry partner in that CRC as CEO of SMARTS and became a board member of that CRC initially as the representative of Nasdaq, later independent. In 2014 he established the venture fund Capital Markets technologies, the first VC fund directly owned by a CRC.

With the advent of blockchain and the increased awareness of the value of asset tokenisation that facilitated, Andreas renewed his involvement in Digital Finance, and founded digi.cash as a next generation tokenisation approach (now combined with blockchain), as well as founding Trovio (formally Infinigold - digitisation of gold initially with the Perth Mint).

Prof. Ross Buckley
KPMG Law - King & Wood Mallesons Professor of Disruptive Innovation

Ross Buckley is the KPMG Law - King & Wood Mallesons Professor of Disruptive Innovation, and a Scientia Professor, at UNSW Sydney.

His research focus is FinTech, RegTech and blockchain. His research on these topics has been downloaded more often from the Social Science Research Network than that of any other social scientist. This joint research has (a) developed the generally accepted timeline for the evolution of FinTech; (b) reconceptualised the true potential of RegTech; (c) undertaken the first comprehensive analysis of the liabilities of blockchain; and (d) analysed the rise and regulation of initial coin offerings, in a forthcoming article in the Harvard Journal of International Law.

He has led seven major, multi-year funded research projects, written five books, edited five more, and written over 140 book chapters and articles in leading journals in all major jurisdictions.

He chairs the Digital Finance Advisory Panel of the Australian Securities & Investments Commission (ASIC). He consults regularly to the Asian Development Bank, and has consulted to government departments in ten countries, including Australia and the US. He has twice been a Fulbright Scholar, at Yale and Duke.

Jon Deane
CEO, Trovio

Jon is currently the CEO of Trovio, a commodity digitisation firm that developed and issued the world's first token backed by government guaranteed gold. Trovio partners with commodity supply chain participants around the world, offering a white labelled technology solution that enables increased client connectivity and wider distribution leveraging frontier technologies.

He was previously the CEO of TCM Capital, an asset manager and advisory firm focused on digital assets. TCM Capital developed traditional investment vehicle focused on capital and income growth from emergence of digital assets. Their advisory arm has worked across Blockchain and digital solutions for owner occupied residential real estate in California, to solar power solutions in Australia.

Prior to this he was a Managing Director at JP Morgan, as Head of Commodities Trading for Asia Pacific, covering energy, metals and precious and the Global Head of Agricultural and Bulk Commodities Trading. Here he

led a team of local and global traders across financial derivatives and physical commodities developing both the agricultural and bulk commodities businesses into industry leading franchises during his nine years at the firm. He was responsible for the onshore China commodities strategy as well as the built out of the OTC electronic trading product offering.

Jon has a Bachelor of Commerce degree from the University of Sydney, Diploma in Applied Finance and Investment from FINSIA. He has accreditations from MAS, FCA and AFMA. He is currently studying for a Global Executive MBA at The University of Sydney.

Andrew Dyer
Senior Partner and Managing Director at Boston Consulting Group

Andrew is a Senior Partner and Managing Director at Boston Consulting Group. Andrew advises some of the world's most ambitious and successful business leaders to drive digital transformation and create change both in terms of people and technology.

Prior to joining BCG, Andrew worked in corporate banking and capital markets. Andrew has also worked for the Australian Federal Government.

Andrew's work is based on his belief that the digital age requires a learning organization, and that means building the mindsets, knowledge, skills, and behaviours that are critical to success; and this must be done in conjunction with technology.

Andrew advises clients across the world, including Australia, Singapore, Korea, Thailand, Indonesia, New Zealand, Switzerland, the United Kingdom, and the United States and currently sits on the advisory board of BCG's investment office and is a member of BCG's Audit & Risk and Stable Capital Committees.

Andrew is also a member of the Australian National University's Finance Committee, a Non-Executive Director of Adslot Ltd and a Fellow of the Bruce Henderson Institute, a think tank dedicated to pioneering new ideas and approaches to solving business challenges.

Andrew has an MBA from IMD in Switzerland, a Master of Commerce (Finance) from the University of NSW, and a Bachelor of Economics (Honours) from the Australian National University.

Clare Gill

Chief Regulatory and Sustainability Officer at Seven West Media

Clare is an experienced executive with over 20 years experience in regulatory, government and corporate affairs, investor relations and corporate communications. Clare has worked in a wide range of industries from ICT research, consumer technology. telecommunications, media and agriculture.

Clare Gill is a Non Executive Director of RoZetta Institute and most recently held the position of Group Director Regulatory Affairs at Nine and was also on the Board of Freeview, and RBAH, and an alternate Board member for the Press Council and Free TV. Clare has also held leadership positions at Optus, NICTA (CSIRO Data 61) Sunrice and Ericsson.

Clare holds a Master of Arts, Post Graduate Diploma in Commerce, Post Graduate Diploma in Media and Communications and a Bachelor of Arts.

Michael Karbouris

Head of Strategy, Nasdaq Buy & Sell Side Technology Division

Michael has over 14 years experience in establishing and growing a variety of capital markets technology businesses across financial crime, electronic trading and risk management with a strong focus on fintech and regtech.

Michael is currently responsible for the inorganic growth of Nasdaq's technology business. In this role Michael evaluates, structures and executes corporate investment opportunities, including acquisitions, joint ventures, minority investments and partnerships. He also oversees business development for several corporate venture portfolio companies both directly and as a board observer. In previous roles within the Nasdaq Group Michael has been responsible for establishing and growing several

of Nasdaq's technology businesses in the areas of risk management, electronic trading and surveillance across the US, UK, Asia and Australia.

Prior to Nasdaq Michael was Head of Sales for SMARTS the global leader in real-time market surveillance and supervision. Following Nasdaq's acquisition of SMARTS in 2010 Michael moved to the US to establish SMARTS' New York office.

Michael holds a Masters in Philosophy from the University of New South Wales (Behavioural Finance) and a Bachelor of Computer Science (Hons) from the University of Technology Sydney.

Tony Mackay
Founder & CEO, XBourse Global

Tony has over 30 years experience implementing technology to improve global financial markets. Starting as a stockbroker in Australia in the 80s, Tony utilised mainframe technology and then - nascent PC technology to move corporate analysis and trade confirmations/ reporting from pen, paper, post and telex/fax to electronic formats that could be distributed to clients globally.

In the 90s Tony joined Instinet which was the US based global pioneer of electronic trading. In 2005 NASDAQ acquired Instinet's US business for US$1,600m. In 2007 Tony was the founding CEO and Chairman of a pan- European ATS, Chi-X Europe, which within three years had become the biggest intra-day trading exchange in Europe. Tony was also founding CEO and Chairman of

Chi-X Global which expanded the Chi-X franchise to Canada, Australia, Singapore, Hong Kong and Japan. This was sold to NASDAQ and another PE firm in 2016.

More recently, Tony has been pioneering efforts to adopt blockchain technology to improve the range of financial products that can be tokenised and traded. Tony has formed XBourse Global (www.xbourseglobal.com) for this venture and is partnering with some of the leading global blockchain and smart developers – Digital Asset Holdings (www.digitalsset.com) (Digital Asset are converting the ASX post-trade system, CHESS, to blockchain) and Trovio (trovio.io).

Dr Phil McCrea
Strategic IT Advisor

Phil worked most recently at the Australian anti-money laundering regulator, AUSTRAC, in a range of roles, including Chief Technology Officer.

Phil has worked across the IT industry in academic, government and commercial sectors. After completing a PhD in Electrical Engineering at UNSW, he held various academic positions in Universities in Australia, the UK and Canada.

After leaving the University sector, Phil held various senior roles in the IT industry, including taking two companies from start-up to profitability as CEO – Softway and ac3.

Softway, a UNIX systems software house, focused on export. Softway contracted to computer manufacturers in the US and Japan and also successfully commercialised software from Sydney University by licensing it to most supercomputer manufacturers in the world. ac3 started off life as the NSWSupercomputer centre with funding from the state Government. A requirement to be self- sustaining necessitated a change of direction into initially server hosting and then managed services at the system level.

Phil has extensive experience at the interface between research, government and industry including five years at CSIRO in a business development capacity brokering relationships between researchers and the IT industry. He has consulted to the Smart Services CRC on commercialisation, as well as to Universities and to Intersect NSW in the areas relating to research infrastructure.

Prof. Talis Putnins

Professor of Finance, University of Technology Sydney

Talis Putnins is a Professor of Finance at the University of Technology Sydney. He specialises in the microstructure of financial markets, including market regulation, the use of technology and data in trading, and misconduct in financial markets. He teaches a national PhD course in financial market microstructure.

Talis has led large and multidisciplinary research projects funded through competitive research grants, spanning both stages of the technological transformation of

the financial system. He has worked on First Stage transformation issues including how price formation occurs in electronic markets, the impacts of algorithmic and high-frequency trading, and the drivers of liquidity and instability in markets as they shift from human-driven to computer-driven. His more recent work on the Second Stage transformation includes how cryptocurrencies

are used and abused and how tokenisation of financial securities is likely to impact the financial system.

Professor Putnins regularly serves as a consult and advisor to regulators, stock exchanges, and financial institutions in a number of countries. He has served as an expert witness in legal matters concerning financial markets and securities. He has published in leading academic journals and authored a number of industry reports and policy briefs to governments. He has previously held faculty and visiting positions at Columbia University, NewYork University, Stockholm School of Economics, and has a PhD from the University of Sydney.

Rachel Grimes, AM

Rachel Grimes AM is a Non-Executive Director. A Chartered Accountant with over thirty years' experience in the financial services sector, Rachel has worked at Challenger Group, Westpac, BT (formerly BT Financial Group) and PwC Australia.

Rachel graduated from the University of Technology, Sydney (Bachelor of Business in Accounting).

Rachel joined the Institute of Chartered Accountants Australia in 1994. She advanced to a Fellowship in 2002 and became a Director in 2006. In 2011, Rachel was appointed President of the Institute of Chartered Accountants Australia and was the President of the International Federation of Accountants (IFAC) – the global organisation for the accountancy profession from 2016 to 2018.

Rachel is a Director on the Accounting Professional and Ethical Standards Board and serves as the Chair of the Finance and Risk Committee for Surfing Australia.

Rachel has been on the advisory committee for the DFCRC bid since its inception and is taking a particular interest in the regulatory research program, and its audit and accounting aspects for Digital Finance. She brings a unique combination of a deep understanding of the field alongside extensive expertise in governance and auditory oversight. Rachel was also instrumental in the DFCRC's gaining of support from the national accounting and auditory bodies.

Dr David Skellern, AO

David Skellern is one of Australia's most successful technology entrepreneurs and a globally recognized researcher and research manager.

David worked in radioastronomy for 10 years and taught electronics at Sydney and Macquarie Universities for 16 years before coming to prominence in the IT industry through Radiata, which he co-founded in 1997. Built on joint research conducted by Macquarie University and the CSIRO, the company demonstrated the world's first chip-set implementation of the IEEE 802.11a High-Speed WLAN standard. In 2001 Radiata was acquired by Cisco Systems Inc., where David was Director of Technology for the Wireless Networking Business Unit until 2004.

Dr Skellern joined the Board of National ICT Australia in 2003 and became its Chief Executive Officer in 2005. Dr Skellern was appointed to the Order of Australia in 2010. He is currently the Chair of the RoZetta Institute Board.

Neville Stevens, AO

Neville Stevens has broad experience at a senior level both inside and outside of government.

His 30-year career in the Australian Public Service included senior positions in the Department of Prime Minister and Cabinet, the Industry Department and the Department of Communications, Information Technology and the Arts. Mr Stevens was Secretary of the Department of Communications, Information Technology and the Arts from 1993–2001.

Prior to this, he served as Secretary of the Industry Department (1990–1993), following a five-year tenure as Deputy Secretary of the same department.

Since leaving the public service in 2001, Mr Stevens has undertaken a range of assignments providing high level policy and strategic advice to public and private sector organisations. He has also participated in and chaired a number of boards and panels, including Chair of NICTA, a large information and communications technology research centre which merged with elements of CSIRO and as Chair of the Cooperative Research Centre Committee, tasked with oversight of the federal government's Cooperative Research Program.

Neville graduated from Adelaide University with a Bachelor of Economics (Hons). He was made an Officer in the Order of Australia in 2002.

Jackie Taranto

Jackie Taranto is a seasoned business executive and entrepreneur with over thirty years experience across a range of industries including technology, advanced manufacturing, international trade, medical, finance & investment, research and infrastructure.

She specialises in creating business collaboration opportunities and extracting and building value out of timely deployment of technology and talent. She founded and built a number of companies, including Hannover Fairs Australia - the Australian/New Zealand subsidiary of Deutsche Messe, the world's largest venue owner-operator, and has successfully launched global brands CeBIT and CeMAT in Australia. Jackie currently sits on the board at ARM Hub, an agile world-leading technology centre in robotics and design-led manufacturing, and has previously served on the boards of German-Australian Chamber of Industry and Commerce, IOT Alliance Australia and the Bright Alliance Advisory Committee – NSW's first cancer-dedicated hospital.

Where to from here?

We are seeking long term industry and university partners who are committed to investing in and working with the Digital Finance CRC, for a period of up to ten years.

For industry partners, the commitment includes supporting the DFCRC with funding, access to data, subject matter experts, and support from the business in general.

The Digital Finance CRC was established on 30 June 2021. The DFCRC is a not-for-profit company supported under the Australian Government's Cooperative Research Centre Program.

For further information email: ***info@dfcrc.com***

www.dfcrc.com.au

Digital Finance CRC Limited
ABN 29 652 335 405

DFCRC DIGITAL FINANCE CRC
THE FUTURE OF FINANCE

Australian Government
Department of Industry, Science, Energy and Resources

AusIndustry
Cooperative Research Centres Program

This project received grant funding from the Australian Government through the CRC Program.