



Litepaper: Real-World Asset Tokenisation

Transforming Australia's Capital Markets

MARCH 2024

A RESEARCH PAPER BY
Blockchain Australia
Digital Assets Working Group



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Executive Summary

Blockchain Australia presents this litepaper to provide a brief overview of the potential and challenges of the emerging field of Real-World Asset (RWA) tokenisation in Australia. As the peak industry body representing blockchain and digital asset businesses in Australia, we are committed to fostering a regulatory environment that supports innovation while ensuring consumer protection and market integrity. Our members include blockchain developers, service providers, investors, digital currency exchanges and other participants involved in the Digital Assets ecosystem.

This litepaper explores the transformative potential of RWA tokenisation, a process that applies blockchain properties to real-world assets, thereby fostering benefits such as increased liquidity, fractional ownership, transparency, and streamlined processes. We assess the current global landscape of RWA tokenisation, the types of assets that can be tokenised, and the benefits and limitations of this technology today.

We equally look into the Australian context, discussing the relevance of RWA tokenisation to the Australian economy and its financial and technological infrastructure. The paper further delves into the policy and regulatory aspects, highlighting existing blockchain regulation and the potential hurdles for regulators in a domestic and global context. We highlight the importance of a supportive policy and regulatory environment, and the role of Digital Asset Facilities (DAFs) in enabling a wider adoption of this technology across various industries.

Australia presents fertile ground for RWA tokenisation to flourish. We emphasise the need for Australia to leverage its mature tech infrastructure and industry to support RWA tokenisation initiatives. The paper also highlights the potential of these initiatives in future-proofing Australia's primary and secondary asset markets and enabling industry expansion into various verticals.

We look forward to engaging further with policymakers, regulators, innovators, industry stakeholders, and our members to foster a conducive environment for RWA tokenisation in Australia. We welcome feedback to the paper and look forward to engaging with the industry participants in constructive dialogue to shape the future of this promising field.

Please direct all queries to:

Simon Callaghan
Chief Executive Officer
Blockchain Australia

Global Context

Key Takeaways:

- **RWA Tokenisation:** Blockchain technology is transforming traditional finance by enabling tokenisation of real-world assets (RWAs) like art, real estate, commodities, securities, and fiat currency.
- **Benefits:** Fractional ownership, increased liquidity, transparency, and removal of cumbersome processes are key benefits of RWA tokenisation, revolutionising traditional asset ownership.
- **Real-world Adoption:** Tokenisation is being used in the real world, particularly in the wholesale sector, with real estate and equities being the most commonly tokenised assets.
- **Limitations:** Barriers to adoption include lack of education, self-custodianship concerns, market volatility, liquidity issues, complex tokenisation/redeeming processes, and legal/regulatory uncertainty.
- **Regulatory Challenges:** Privacy, token mapping, custody, and AML/CTF are significant regulatory hurdles that need to be addressed for wider use of tokenisation.
- **Case Studies:** Companies like DigitalX, Estate Protocol, and PeerHive are already implementing RWA tokenisation in real estate and lending sectors.

Real-world asset (RWA) tokenisation has been described as a “killer application” for blockchain technologies, and represents one of the next major opportunities for blockchain to transform the world of traditional finance and wealth management. Marked by growing adoption and technological advancements, the global landscape of RWA tokenisation is undergoing a transformative phase that is being embraced by a number of industries, including but not limited to: financial products, real estate, art, and commodities. This adoption is fostering many benefits including: greater liquidity (thereby increasing capital efficiency), enabling fractional ownership (thus lowering barriers to entry and increasing diversification), creating transparency (building trust in markets), and streamlining traditionally cumbersome processes (contributing to improved productivity).

As reported by Digital Asset Research (Jan 2024)¹, the vast majority of these RWA tokenisation protocols are currently being operated in the US, with Asia and Europe trailing behind. Notably, Australia operates only 1 of the 80 listed RWA tokenisation protocols.

¹ <https://www.digitalassetresearch.com/real-world-assets-rwas-tokenization-report-december-2023-recap/>



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What assets might be affected by RWA tokenisation?

Generally speaking, RWAs within the context of RWA tokenisation, refer to tangible, physical assets like: art, real estate, or commodities, etc. However, increasingly, tokenisation protocols are being applied to assets that don't necessarily have a real-world, physical equivalent but still retain some of the properties of owned physical assets like: securities, private credit, fiat currency, etc.

For the purposes of this litepaper, we will be referring to RWA tokenisation as a broad protocol that facilitates the application of blockchain properties to their real-world counterparts. This includes, but is not limited to:

- Utilities: electricity, emissions.
- Capital: shares, debt capital, private and commercial credit, con and safe notes.
- Commodities: gold, silver, fiat currency.
- Luxuries: art, wine, designer goods.
- Property: real estate.

What are the benefits of RWA tokenisation?

Some confusion exists as to the manner in which RWA tokenisation is executed. While each tokenisation protocol remains specific to the asset being tokenised, summarily RWA tokenisation is a process by which features of on-chain protocols can be applied to real-world assets. Some of these features offer up broad value applications to RWA tokenisation protocols.

Fractional ownership

Fractional ownership breaks the current mould of RWA ownership allowing multiple investors to hold a stake in any specific asset. For example, investors might have the opportunity to use their wealth to buy a portion of assets (e.g. art or property) that they might not be able to otherwise own. It also allows investors to enter the market at a lower price point, thereby opening opportunities up to a significantly larger pool of investors than previous methods of ownership allow.

Increased liquidity

The shift from total to fractional ownership of assets unlocks pathways for capital flow that previous ownership models restricted, particularly with respect to high-value assets. Take, for example ConstitutionDAO², a group organised for the sole purpose of pooling liquidity in order to purchase the original US Constitution when put up for auction. This project allowed a group of US citizens to pool their funds and enter a competitive bid into

² <https://www.constitutiondao.com/>



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the auction that, otherwise, would not have been achievable by any individual contributor.

This is not just beneficial for investors but also for downstream beneficiaries. For example, in some current decentralised finance applications, liquidity pools are utilised to allow other market participants the ability to loan capital from the liquidity pool.

Transparency

One of the much celebrated value drivers of blockchain technology is the inherent verifiability and immutability of the ledger that underwrites any protocol. While RWA tokenisation protocols may leverage either public or private blockchains (thereby affecting access by unaffiliated users or participants), the verifiability and immutability of the ledger allows for ownership of assets to be made clear and transparent. While the level of clarity and transparency are dependent on the protocol with its features and functions, this functionality comes as a simple element of blockchain solutions.

Removal of cumbersome processes

While the specific processes that RWA tokenisation may alleviate or reduce are dependent on the specific tokenisation protocol, there are a number of processes that the broader benefits of tokenisation may affect. This includes, but is not limited to:

Global participation

Depending upon the asset and the form of ownership, enabling blockchain technologies can potentially open up a market to global participation without the need for complex cross-border processes.

Efficient settlement

Smart contract functionality or native token payments may allow for RWA tokenisation protocols to improve timeframes and simplify processes for both clearing and settlement.

Reduced intermediaries

Traditional asset transfer processes often involve a significant number of intermediaries (e.g. brokers, lawyers, financial institutions, etc.) leading to increased cost and complexity for investors. Blockchain technology has the potential to reduce this dependency.

Improved compliance and reporting

Utilising core blockchain technology features within RWA tokenisation protocols may allow for improved compliance and reporting functions that can, in traditional asset ownership, be burdensome and time-consuming. Equally important, the use of the technology enables more proactive compliance monitoring of transactions.



RWA tokenisation has the potential to revolutionise traditional asset ownership both at a macro and micro level. It has the potential to revolutionise the flow of capital through many and various industries, domains, and asset types.

We recognise that there may also be benefits to governments, regulators, DAOs and broader society, however this is out-of-scope of the litepaper.

Technology Adoption

Is tokenisation being used in the real world?

Tokenisation is indeed being utilised in the real world, though its adoption varies significantly between two primary sectors: wholesale and retail. In the retail world, RWAs have not yet reached their full potential, mainly due to the following challenges: education, self-custodianship, and liquidity (or lack thereof).

In contrast, the wholesale world is witnessing considerable activity. A wide spectrum of assets is being tokenised in this sector, including real estate, private credit, securities, commodities, and fiat currency. As of October 2023, two of the most commonly tokenised assets are real estate and equities ([Digital Assets Research, 2023](#)). These are followed by fixed income and private credit. Foreign exchange and commodity assets are among the least commonly tokenised assets at present.

The services being utilised for asset tokenisation as of October 2023 include credit and loans, with smart contracts being employed to generate yield for users and providing loans against assets that traditionally could not be used as collateral.

Based on announcements over the past 6-12 months by a number of large multinational firms expressing their intention to innovate further on these use cases, we expect that the adoption of tokenised RWAs will follow a typical bell-curved adoption path similar to other emerging technology trends, and is still early in the maturity cycle.

What are the current limitations with respect to uptake and adoption?

The lack of widespread education and understanding about cryptocurrencies and asset tokenisation remains a primary barrier. The responsibility of self-custodianship for digital assets is also a significant concern. Managing the risks of theft, fraud, or technical errors can be overwhelming, particularly for those used to traditional systems' safety nets.

The effective integration of traditional and digital assets through tokenisation is currently challenged by market volatility and liquidity issues. These factors contribute to a sense of



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uncertainty, deterring traditional asset holders from embracing digital asset tokenisation. Customers purchasing real-world assets (RWAs) seek assurance that they can sell these assets either in their original form (in-specie) or convert them into other assets, at market rates comparable to the value represented by the token.

A significant limitation in the adoption of asset tokenisation is the inadequacy of efficient on/off ramps. These ramps are essential for the seamless conversion of traditional assets into tokenised forms and vice versa. Currently, the processes involved in redeeming or tokenising assets can be complex, time-consuming, and often lack clarity.

Legal and regulatory uncertainty also needs to be addressed, particularly with respect to property rights, legally-recognised possession, and ensuring alignment between off-chain contractual obligations and on-chain token behaviour. This is covered further in the 'Regulation' section of the litepaper.

Brief Case Studies: Real-world applications

DigitalX

The DigitalX Asset Reference Token (DxART) Fund³ invests in a portfolio of fractionalised real-world assets across multiple asset classes, including: cash, properties, commodities, venture capital, private debts and bonds. The Fund offers the safety of traditional financial and regulated structures while also embracing the opportunities presented by asset tokenisation, blockchain and smart contract technology. The first offering is allocated to fractional co-ownership of Australian residential properties, helping narrow the housing deposit affordability gap for Australians seeking to buy a house.

Estate Protocol

Developed in the UAE but headquartered in the US, Estate Protocol, allows users to fractionally invest in property in a number of countries.⁴ Powered by USDC (a commonly leveraged stablecoin) Estate Protocol empowers their investor base to diversify their property portfolio across jurisdictions and property types with as little as \$100USD.

PeerHive

PeerHive is a nascent peer-to-peer lending network enabling SMEs to access capital from lenders with excess cryptocurrency.⁵ Moreover, PeerHive allows those SMEs to benefit from this access to capital through a range of debt financing facilities, such as: project-based, general business loans, working capital, trade factoring, credit lines, etc.

³ <https://www.digitalx.com/>

⁴ <https://www.estateprotocol.com/>

⁵ <https://peerhive.app/>



Global Policy Themes

What hurdles/risks/challenges might be present for regulators at this time?

The biggest question when it comes to asset-tokenisation is always “How do I know it’s real?”. Regulation should facilitate the interoperability between tokenised assets and off-chain environments. A selection of relevant policy challenges is listed below.

1. Privacy.
The cryptocurrency industry faces a delicate balance between ensuring user privacy and meeting regulatory oversight requirements. It’s important for policymakers to understand the necessity of maintaining privacy features in digital currencies while also implementing measures to deter illegal activities.
2. Token mapping.
A unified classification system for cryptocurrencies has long been promoted as beneficial for coherent regulation across the industry. In practice, different jurisdictions are taking approaches that make sense for their respective goals and markets. However, interoperability across borders remains essential for internet-native borderless applications. Specifically for asset tokenisation, harmony with the EU’s MiCA laws would ensure coherent regulation.
3. Custody.
There is a significant gap in experienced custodianship for tokenised assets. Developing guidelines for custodians and their relationships with end-users and businesses is crucial for enhancing the security and backing of these assets. Likewise, for real world assets, the underlying asset must have fit and proper custodianship with independent verification of holdings.
4. AML/CTF.
The advancement of comprehensive surveillance tools and standardised databases is critical for monitoring cryptocurrency transactions effectively. Relatedly, cryptocurrencies bring unprecedented legal challenges, such as the implications of sanctioned addresses. Policymakers need to consider these unique challenges and work towards developing adaptable legal frameworks for the sector. An example of this challenge could be an RWA tokenised under a bailment contract, with the tokens being the certificate of ownership. If a sanctioned address attempted a redemption of the underlying asset, something which *must* be honoured under the conditions of the bailment contract, the token issuer must redeem.

Australian Context

Key Takeaways:

- **Australia's FinTech Infrastructure:** Australia's advanced financial technology infrastructure is well-positioned to support the adoption of tokenised RWAs.
- **Policy & Regulation:** Policymakers and regulators play a crucial role in enabling stakeholders to participate in the tokenisation space.
- **Existing Blockchain Regulation:** Current regulations aim to ensure that the same activity is subject to similar regulation, regardless of the service delivery method.
- **Challenges:** The use of DLTs for clearing and settlement in asset tokenisation presents legal, regulatory, and implementation difficulties.
- **Adoption through DAFs:** Proposed regulations aim to establish minimum standards for tokenisation, promoting trust, standardisation, and security, thereby enabling wider adoption of tokenised assets.

Finance & Economic Ecosystem

Financial and financial services technology and infrastructure

Australia's financial technology infrastructure is broadly considered to be of a high standard internationally with respect to payments, data and data sharing, identity and fraud products, and the advancement of some blockchain-enabled asset management technology projects. Furthermore, much of the infrastructure required to enable the function of tokenised RWAs, using any protocol, is established and merely requires integration. Similarly, the maturity of such technology infrastructure in Australia which already enables significantly advanced financial and financial services products will support the adoption of any RWA tokenisation projects. Moreover, some of the more advanced features like Consumer Data Right⁶ may present a strategic opportunity for any projects that might benefit from consent-based access to users' financial data.

While some of the large-scale blockchain-enabled asset management projects have only realised an early stage of maturity, a number of smaller-scale projects have reached enough maturity to potentially support RWA tokenisation project initiatives. This progress coupled with the advancement of the technology industry in Australia at large and the aforementioned financial technology infrastructure creates an ecosystem in which RWA tokenisation project initiatives can be successful.

⁶ <https://www.cdr.gov.au/>



Policy & Regulation

The industry's broader ecosystem has many critical agents including but not limited to:

- Insurance
- Trustees
- Auditors
- Banking
- Payments
- Registries
- Government bodies

Each has varying degrees of maturity and open-mindedness to participate in this emergent space. However, in this section we focus largely on policymakers and regulators, given the critical role they perform in influencing and enabling other stakeholders.

Existing blockchain regulation

Although blockchain specific (and tokenised-asset specific) regulation is still being developed, the mantra exists that 'the same activity is subject to the same or similar regulation, irrespective of the way the service is delivered' as well as a goal of creating technology-neutral policies which capture current and future crypto activity. Whatever these regulations turn out to be, they should provide assurance that the underlying real-world right embodied by the token truly exists, and that the tokenised right can be redeemed/disposed of at any time, avoiding collision of rights to ownership.

Challenges

Although a large part of the value proposition in asset tokenisation is found in its ability to enhance efficiencies at the post trade (clearing and settlement) moment, in practice, the use of DLTs for clearing and settlement creates legal, regulatory and implementation difficulties due to their nature across multiple jurisdiction and questions around settlement finality. Policies should consider the unique challenges that custodianship in DLT networks of tokenised assets brings, given their operational and technical differences to traditional financial securities markets which many policies are based on.

How might adoption be enabled through DAFs with respect to treasury consultation papers?

The proposed regulations in "5.3 Asset tokenisation" aim to establish minimum standards for tokenisation, which includes the requirement for DAFs to provide comprehensive platform/product disclosure statements. This will ensure that all DAFs adhere to a certain level



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of quality and reliability, thereby promoting trust and confidence among users. It will also help to eliminate fraudulent practices and protect the interests of token holders.

Further to that, it will lead to a more standardised process for tokenisation. This will make it easier for businesses and individuals to understand and engage with tokenised assets, thereby promoting wider adoption. Standardisation will also facilitate interoperability between different DAFs and tokenised assets, further enhancing their utility and appeal.

Moreover, the proposed regulations will mandate robust security measures for DAFs, thereby ensuring the safety of tokenised assets. This will help to build trust among users and encourage more people to adopt tokenised assets.

Requiring DAFs to be user-friendly and accessible to a wide range of users will make it easier for people with varying levels of technical knowledge to use DAFs and engage with tokenised assets. By making DAFs more accessible, the proposed regulations will help to promote wider adoption of tokenised assets.



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Closing Remarks

Blockchain Australia believes that the tokenisation of real-world assets (RWAs) presents a significant opportunity for Australia to enhance its capital markets, foster innovation, and improve its competitive standing in the global economy. By embracing this innovative technology, Australia can improve capital flow, future-proof its primary and secondary asset markets, and enable industry expansion into various verticals. The potential benefits of RWA tokenisation, such as increased liquidity, fractional ownership, transparency, and streamlined processes, can revolutionise traditional asset ownership and contribute to the growth and diversification of Australia's economy.

However, the successful implementation of RWA tokenisation initiatives requires careful consideration of certain limitations. The maturity of Australia's technology infrastructure and industry is a key factor in supporting these initiatives. Current limitations include the need for widespread education and understanding of digital assets and asset tokenisation, the challenge of self-custodianship, and the need for efficient on/off ramps for the seamless conversion of traditional assets into tokenised forms and vice versa. Equally, legal and regulatory uncertainties need to be addressed to ensure the protection of property rights and alignment between off-chain contractual obligations and on-chain token behaviour.

Blockchain Australia believes that with the right policy directions and a collaborative approach between industry stakeholders and policymakers, Australia can successfully navigate these challenges and unlock the immense potential of RWA tokenisation to the Australian economy.



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Further Reading

Outlier Ventures Report 2024

<https://outlierventures.io/article/draft-tokenization-of-rwas-2024-thesis/>

OECD Reports:

<https://www.oecd.org/finance/regulatory-approaches-to-the-tokenisation-of-assets.htm>

<https://www.oecd.org/finance/The-Tokenisation-of-Assets-and-Potential-Implications-for-Financial-Markets.htm>

Swift

<https://www.swift.com/news-events/news/successful-blockchain-experiments-unlock-potential-to-kenisation>

Tokenisation Platforms: Metaco

https://go.metaco.com/l/1003211/2023-09-14/qffj/1003211/1694722640oyZiN7vs/PZF_Scaling_Tokenisation_Summary_Report_Metaco.pdf

DeFactor

https://assets-global.website-files.com/64555cbab4849ce1dcc3ff3d/6595489511e3ca3e425e060d_Asset%20Tokenisation%20Unpacked.pdf

Australian Government Speech/Statement:

<https://www.rba.gov.au/speeches/2023/sp-ag-2023-10-16.html>



About Blockchain Australia

Blockchain Australia is the main industry body representing Australian businesses and business professionals participating in the digital economy through blockchain technology. Blockchain Australia encourages the responsible adoption of blockchain technology by the government and industry sectors across Australia as a means to drive innovation and create jobs in Australia.

The Blockchain Australia membership base consists of 125+ leading cryptocurrency and blockchain-centric businesses and 100+ individuals across multiple verticals, including:

- Accounting and Taxation
- Artificial Intelligence
- Art
- Banking
- Building & Construction
- Cyber Security
- Development
- Digital ID
- Education
- Energy and Resources
- Entertainment
- Gaming
- Health and Wellbeing
- Insurance
- Investment
- Legal
- Professional Services
- Recruitment
- Real Estate
- Risk and Compliance
- Supply Chain
- Venture Capital

This litepaper was coordinated by Blockchain Australia's Digital Assets Working Group in close consultation with our membership base. Blockchain Australia thanks Chloe White, Damian Amamoo, Joshua Lang, Mitchell Travers, Pete Walsh, Ross Edwards, William Remor, Yuvraj Singh for their contributions to this paper.

Our other working group insights are available for viewing at <https://blockchainaustralia.org/submissions/>