

Alpha Ladder Finance Secures Patent for RWA Tokenisation with Its Non-Fungible Digital Twin (NFDT) Technology

Alpha Ladder Finance's NFDT bridges physical and digital assets, enabling transparent, verifiable, and programmable ownership of real-world assets via tokens.

SINGAPORE, SINGAPORE, SINGAPORE, July 24, 2025 /EINPresswire.com/ -- [Alpha Ladder Finance](#) Pte Ltd (ALFIN), a regulated financial institution under [Alpha Ladder Group](#), proudly announces that it has been granted a patent protection in Singapore for its Non-Fungible Digital Twin (NFDT) framework, a blockchain-native architecture designed to represent real-world assets digitally with evolving performance and operational data.

The NFDT Patent (SG 11202307858Q), with initial priority filing in April 2021, was approved under the international Patent Cooperation Treaty before the patent was granted in Singapore. This milestone patent marks a significant advancement in Web3 and digital infrastructure, affirming a framework that ALFIN has been developing and refining over the past several years. Originally conceived to address the limitations of static Non-Fungible Token (NFT) models, the NFDT framework introduces an advanced smart contract architecture that enables asset records to evolve by capturing real-world changes in usage, condition, and ownership through a secure, time-stamped ledger.

Programmable Digital Twins for Real-Time, Auditable Asset Representation

The system combines digital twin technologies, originally developed in the context of Industry 4.0, with blockchain-integrated verification, providing institutions, asset owners, and regulators with a live, unique, non-fungible, auditable, and programmable representation of real-world



assets. Unlike conventional NFTs that merely prove ownership of static assets, NFDTs are designed for live real-world assets with evolving data streams to support compliance-grade reporting, asset-backed financing, and ESG-linked claims with built-in transparency and auditability.

“The journey to securing this patent has been a multi-year effort,” said Dr. Bo Bai, Executive Chairman and Co-Founder of Alpha Ladder Group. “We started building the NFDT framework because we knew the market would eventually demand real-time, non-fungible and verifiable asset intelligence, not static records or speculation. With this patent now granted, it affirms our early vision and reinforces the infrastructure we’ve already built. NFDT brings life and logic to RWA tokenisation by providing proof of what’s happening, not just proof of ownership.”



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We built the NFDT framework knowing the market would demand real-time, verifiable asset intelligence, not static records. This patent affirms that vision and reinforces what we've already built.”

Dr Bo Bai, Chairman and Co-Founder of Alpha Ladder Group

Infrastructure for a Trust-Based Token Economy

The Non-Fungible Digital Twin (NFDT) is a next-generation smart contract framework designed to securely represent and manage real-world assets on-chain. The NFDT framework continuously captures real-time asset evolution, offering regulators and owners an immutable audit trail throughout the asset’s lifecycle. Each NFDT is linked to cryptographically verified reports and tracks changes over time via smart contract logic. The infrastructure supports programmable access, expiry, and revocation rules, and anchors real-time data, enabling regulators, investors, and asset owners to validate current asset state of an asset rather than relying on historical records.

The market for real-world asset tokenisation (RWA) is expected to surpass USD 16 trillion by 2030, driven by demand from sovereign wealth funds, financial institutions, and capital market participants. However, this growth also comes with greater scrutiny. As stakeholders increasingly expect transparency, auditability, and proof of impact, tokenisation models must evolve accordingly.

With global regulators increasingly demanding auditability, transparency, and impact-proofing, NFDТ provides a trust-grade solution fit for tokenised financial products, operational disclosures, ESG-linked disclosures, and asset-backed instruments.

The NFDТ patent establishes a new digital foundation for financing, compliance, and asset ownership. By anchoring real-time operational data to each asset's digital twin that is enhanced by blockchain technologies to serve as a unique and verifiable digital representation of the RWA, it enables smarter financing, leasing, and insurance decisions based on actual performance rather than assumptions. Investors gain greater transparency into fractional ownership structures, while assets can now be audited with greater confidence and credibility. Most importantly, this innovation opens the door for everyday consumers to participate in the real economy through transparent, data-backed investment opportunities.

The first wave of NFDТ-powered pilots is already underway. ALFIN is collaborating with strategic partners to roll out applications across tokenised infrastructure for real world assets, including



Alpha Ladder Finance



Dr Bo Bai, Chairman and Co-Founder of Alpha Ladder Group



The Future of Digital Payment and Wealth Innovation

renewable energy projects, real estate assets, intellectual property with evolving data, and ESG-linked financial products.

With its patent now secured, Alpha Ladder Finance is doubling down on delivering trusted on-chain infrastructure that bridges real-world performance with digital finance, empowering enterprises, investors, and regulators alike.

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About Alpha Ladder Finance

Alpha Ladder Finance Pte. Ltd. (ALFIN), formerly known as Metaverse Green Exchange Pte. Ltd., is a regulated financial institution headquartered in Singapore. Licensed by the Monetary Authority of Singapore (MAS), ALFIN holds a Capital Markets Services Licence for dealing in capital markets products and custodial services. The firm is also a Recognised Market Operator, positioning it at the forefront of regulated capital markets innovation.

ALFIN offers an integrated suite of capital markets solutions spanning securities, collective investment schemes, and both exchange-traded and over-the-counter derivatives. These services are purpose-built to meet the evolving needs of sophisticated clients, including institutional investors and accredited investors across both traditional and digital asset classes.

With a strong foundation in security and compliance, ALFIN's custodial services leverage institutional-grade infrastructure to safeguard client assets with precision, reliability, and trust. As a Recognised Market Operator, ALFIN is powering the next generation trading platforms, bringing together regulatory rigour and cutting-edge technology to shape the future of capital markets.

To learn more about Alpha Ladder Finance, please visit:

<https://www.alphaladder.com/subsidiaries/alpha-ladder-finance/>

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