

PLAYBOOK

Tokenization of Aviation Assets



Sanya Nagpal
Hybrid Finance Blockchain (HYFI)

(c) 2023 Sanya Nagpal. All rights reserved.
Version 0.2 dated **6 June 2023**.

The information in my documents, social media networks, websites, and videos is for general information only and should not be taken as constituting professional advice from me.

I am not liable for any loss caused, whether due to negligence or otherwise arising from the use of, or reliance on, the information provided directly or indirectly.

I link to external resources for your convenience. I am selective about them but I don't endorse them.

No investigation has been made of common-law trademark rights in any word. Words that are known to have current trademark registrations are shown with an initial capital and are also identified as trademarks.

Please be aware that some of the information contained within this document, including names, figures, and technical details, has been sourced from the internet. Given the nature of online data, I do not guarantee the accuracy, reliability, completeness or timeliness of this information.

It is crucial to note that while effort has been made to ensure the quality of the information presented, it may not be free from errors, omissions, or discrepancies.

This is particularly applicable, but not limited to, the field of the aviation industry, an area in which I do not claim to hold expert knowledge or qualifications.

Contents

What is Tokenization?	04
Benefits of Tokenizing Aviation Assets	06
Which Aviation Assets can be Tokenized?	10
Process of Tokenization	12
Case Study: Tokenizing a Cessna Skyhawk	19
Relevant Legal documents	23
Hybrid Finance Blockchain (HYFI)	25

What is Tokenization?

Tokenization is the **creation of Blockchain Tokens** that represent real-world assets - from airplanes & carbon credits to ships & real estate.

Each token represents a fraction of ownership in the underlying asset, enabling investors to buy, sell, or trade these tokens on digital asset marketplaces.

Tokenization **bridges the gap** between traditional finance and the digital world, leveraging the benefits of blockchain technology.

Asset classes that can be tokenized:

1. Aerospace Assets
2. Art
3. Aviation Assets
4. Carbon Credits
5. Collectibles
6. Copyright licenses
7. Fiat Currencies
8. Financial Investments
9. Infrastructure
10. Loyalty Points & Rewards
11. Maritime Assets
12. Metals
13. Mining & Mineral Rights
14. Real Estate
15. Sports Teams & Franchises



There are over 41,700 airports around the world, with the United States having the most with over 13,000 airports.

Benefits of Tokenizing Aviation Assets

1. Increased Liquidity

Tokenization enables fractional ownership, allowing investors to buy and sell smaller portions of assets. This democratizes investment opportunities and enhances liquidity, making it easier for asset owners and buyers to find each other.

2. Lower Costs

Tokenizing assets can significantly reduce transaction costs, as it streamlines the process of asset transfer and eliminates intermediaries.

This reduction in fees and administrative expenses makes investing in tokenized assets more cost-effective for both investors and asset owners.

3. Enhanced Security

Blockchain's inherent features protect tokenized assets from fraud and cyber attacks. The transparent nature of blockchain also minimizes the risk of counterfeit assets entering the market.

4. Faster Transactions

Blockchain technology enables rapid settlement of transactions, speeding up the process of buying and selling assets. This efficiency reduces the time it takes for asset transfers to be completed, leading to increased market activity.

5. Global Market Access

Tokenization opens up global investment opportunities by breaking down geographical barriers. Investors from around the world can access tokenized assets on blockchain platforms, fostering cross-border investment and diversification.



6. Improved Transparency

Tokenization brings transparency to asset ownership and transactions. As blockchain records are immutable and publicly accessible, investors can verify the history and authenticity of assets, reducing the risk of fraud.

7. Easier portfolio diversification

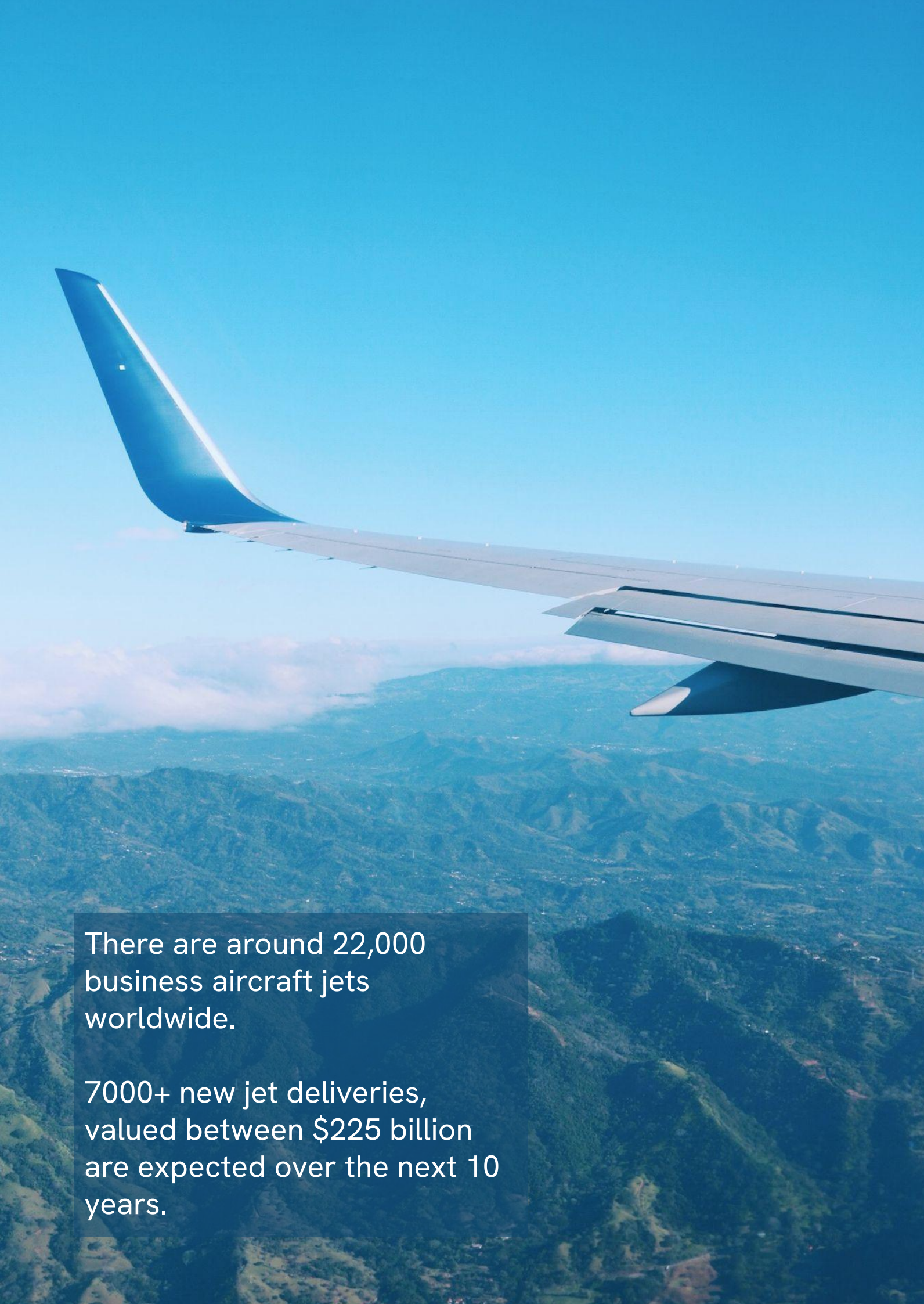
Tokenization enables investors to access a wider range of asset classes and sectors, facilitating portfolio diversification and risk management.

8. Simplified asset management

Tokenization can streamline asset management processes, reducing administrative burdens and providing real-time information on asset performance.

9. Programmable assets

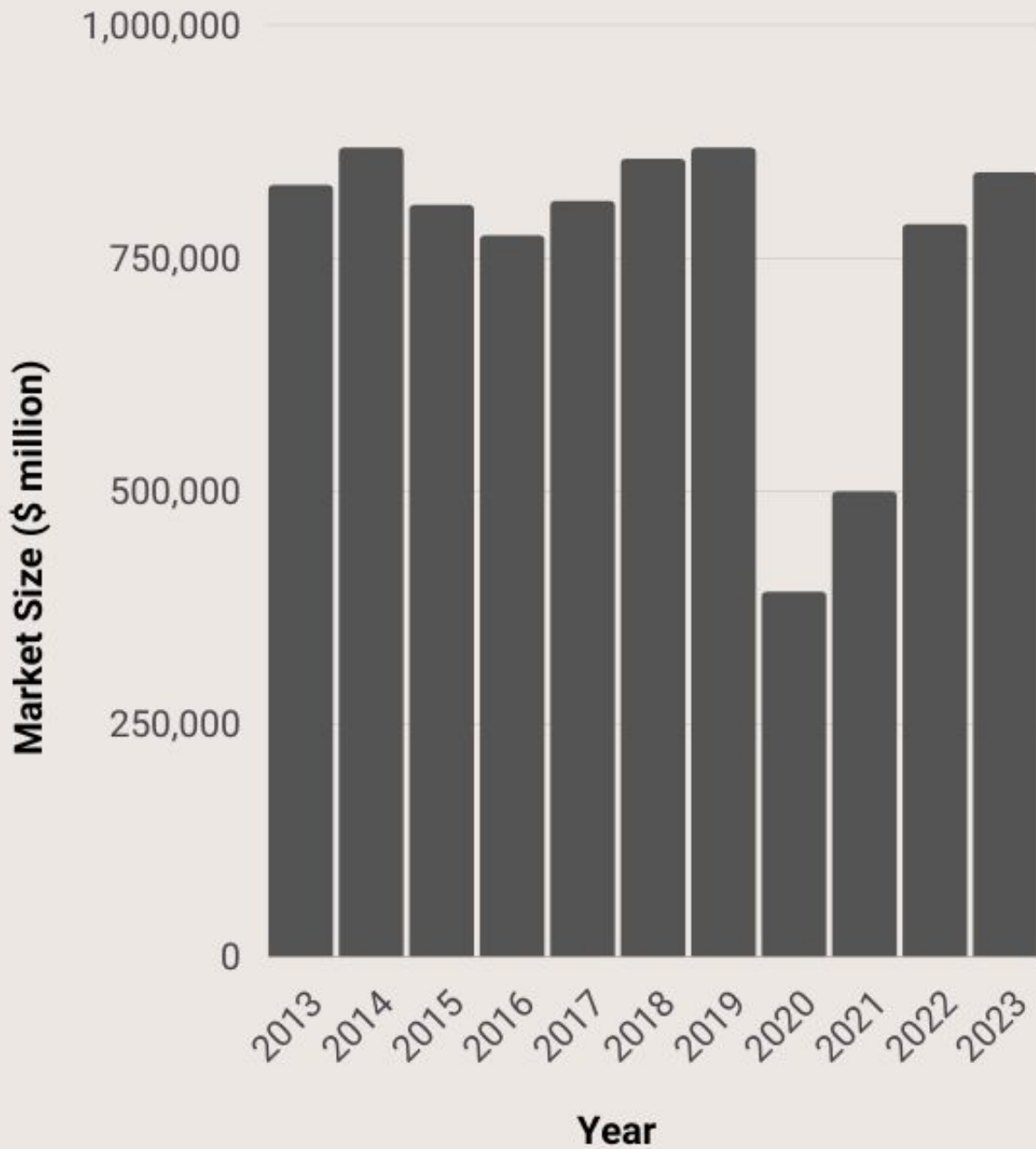
Smart contracts can be used to automate and enforce specific terms and conditions, such as dividend payments or voting rights, simplifying asset administration.



There are around 22,000 business aircraft jets worldwide.

7000+ new jet deliveries, valued between \$225 billion are expected over the next 10 years.

GLOBAL AIRLINES - MARKET SIZE 2013-2023



Which Aviation Assets can be Tokenized?

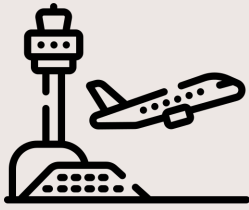
1. Airports
2. Commercial & Cargo Planes
3. Drones
4. Engines
5. Flight Simulators
6. Helicopters
7. Private Jets
8. Seats
9. Leasing Rights
10. Loyalty Points





Leonardo da Vinci, an Italian inventor and artist, made drawings of an ornithopter flying machine in the mid-1500s that inspired the modern helicopter.

PROCESS OF TOKENIZATION OF AVIATION ASSETS



1. Asset selection



2. Asset Valuation



3. Legal & Regulatory Compliance



4. Define Ownership Structure



5. Develop a Prospectus



6. Token Creation



7. Token Issuance & Listing



8. Marketing & Promotion



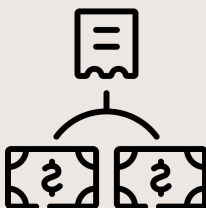
9. Investor Verification



10. Investor Support



11. Manage & Monitor Asset



12. Profit Division

Process of Tokenization of Aviation Assets

The process of tokenization of Aviation Assets requires the support of legal, financial, and technical experts.

Step 1: Asset Identification and Selection

Determine which aviation asset you wish to tokenize based on the following factors of consideration:

1. Asset Lifespan
2. Asset Liquidity
3. Asset Value
4. Environmental Impact
5. Existing obligations on the asset
6. Insurance
7. Jurisdiction
8. Maintenance requirements
9. Market Demand
10. Operational Expenses
11. Ownership Structure
12. Profitability
13. Regulatory Compliance
14. Risk Profile

Step 2: Asset Valuation

With the help of professional aviation asset appraisers and valuers, the airplane is valued to know the total value of tokens to be issued.

Step 3: Legal and Regulatory Compliance

Compliance with local and international regulations pertaining to aviation asset tokenization is ensured in consultation with legal experts.

Step 4: Ownership structure and Finance requirements

In consultation with Token economists and Financial advisors, Token issuers finalise:

1. How much of the total cost of the asset will be raised by tokenization and other sources (eg. 4 : 1)
2. The ownership structure of the asset
3. Rights token holders will receive (eg. Ownership, profits, etc.)
4. The breakup of total value into tokens (eg. 1 token = 1/1000th of the asset)
5. Perks/benefits token holders will receive
6. Insurance and Tax requirements

Step 5: Develop a Prospectus

Token issuers design and release an investment prospectus detailing the tokenized assets based on the following structure:

A. Introduction

- Objective of the Prospectus
- Company Overview
- Brief introduction of the asset

B. History and Background

- Management Personnel
- Core Competencies
- Detailed Asset Information

C. Description of the Asset

- Current Valuation
- Operational Costs
- Lifespan and Maintenance
- Insurance
- Compliance and Regulatory Status
- Environmental Impact
- Tokenization Details
- Holding and management of physical asset

D. Overview of Tokenization Process

- Token Allocation and Pricing
- Rights and Benefits of Token Holders
- Financial Projections

E. Revenue Forecasts

- Expense Forecasts
- Profitability Projections
- Market Analysis

F. Industry Overview

- Competitive Landscape
- Market Trends
- Token Market Demand and Liquidity
- Legal and Regulatory Compliance

G. Regulatory Landscape

- Compliance Measures
- Risk Factors

H. Business Risks

- Market Risks
- Legal and Regulatory Risks
- Investment Considerations

I. Investment Details

- How to Buy Tokens
- Expected Returns
- Exit Strategy
- Corporate Governance

J. Contact Information

K. Glossary of Terms

L. Appendices (Financial Reports, Legal Documents, etc.)

Step 6: Token Creation

Develop the digital tokens that will represent fractional ownership of the asset based on the prospectus. These tokens should be built using smart contracts to ensure security and transparency.

Step 7: Token issuance and listing

Token issuers issue the tokens and list them on a token marketplace where prospective token holders can access their prospectus and buy the tokens.

Step 8: Marketing and Promotion

Issuers develop a marketing strategy to attract potential investors. This could involve targeted advertising, press releases, social media promotion, and partnerships with relevant organizations.

Step 9: Investor Verification

Process is implemented to verify the identity of investors (KYC process), ensuring compliance with anti-money laundering (AML) regulations.

Step 10. Investor Support

Token issuers provide ongoing support for investors, including regular updates on the project, a platform for communication, and efficient customer service.

Step 11: Manage and Monitor Asset

Strategy is implemented for the ongoing management and monitoring of the tokenized asset to ensure it remains profitable and beneficial for token holders.

Step 12: Profit division

The profit generated by the asset will be divided between the token holders on the basis of the agreed profit share.

Eg. Profit to Token Holders = (Total Revenue - Costs - Expenses - Maintenance) × (1 - Lessor's Percentage)



Even after their retirement, planes are worth **millions of dollars** in parts which are salvaged and sold in the market.



Case Study: Tokenizing a Cessna Skyhawk

Skyward Wings Aviation Club, a renowned flying club in Australia, is committed to offering top-notch flight training services.

To provide aspiring pilots with the best training experience, the club decides to invest in a state-of-the-art trainer aircraft. After careful research, they decide to invest in the iconic **Cessna 172**.

The CESSNA SKYHAWK piston is the most popular single-engine aircraft ever built and has achieved a reputation for being the ultimate training aircraft.

With simplistic flight characteristics, great visibility and a sophisticated glass cockpit outfitted with GARMIN G1000 avionics, the Cessna Skyhawk piston boasts a slow landing speed and a lenient stall. These characteristics make it a flight training favorite ideally suited for student pilots.¹

However, the price tag of a brand new Cessna 172 amounts to a substantial **\$432,000**, which prompts Skyward Wings Aviation Club to devise an innovative funding strategy.



Working closely with its **in-house legal team**, the club ensures that their plan aligns with Australia's upcoming tokenization regulations.

Recognizing the immense potential of fractional ownership, they decide to fund **\$100,000** from their own pocket and raise the remaining funds by tokenizing fractional rights to the aircraft's future profits.

To make this vision a reality, Skyward Wings Aviation Club issues **33,200 tokens**, valued at **\$10 each**, representing ownership stakes in the aircraft's profits.

These tokens will entitle the holders to a share of the income generated by the aircraft, with costs and a **10% club fee** deducted before distribution.

To ensure transparency, compliance, and a sustainable structure, Skyward Wings Aviation Club chooses to tokenize the Cessna 172 on the **Hybrid Finance (HYFI) Blockchain**.

HYFI is the world's first completely regulated blockchain, boasting **100% compliance with KYC** (Know Your Customer), **AML** (Anti-Money Laundering), and **CFT** (Combating the Financing of Terrorism) norms.

Through the HYFI interface, the club **creates a smart contract** that automates the enforcement of all the terms outlined in its comprehensive prospectus.

The **prospectus** encompasses asset-related, historical, technical, legal, regulatory, and tokenization information, ensuring transparency and investor confidence.

With the tokens ready for sale, Skyward Wings Aviation Club embarks on a **strategic marketing campaign**.

Leveraging its strong online presence, the club actively promotes the sale through social media platforms, targeted Google advertisements, and traditional newspaper ads.

To streamline the investment process, HYFI's KYC-compliant technology handles **investor identity verification**.

Within just one month, the club successfully sells out all 33,200 tokens, attracting a diverse range of investors from around the globe.

Recognizing the importance of investor satisfaction, Skyward Wings Aviation Club establishes a **robust system to keep token holders informed** about the aircraft's updates, including repairs, maintenance, and changes in value.

Additionally, the club partners with a dedicated agency to provide **exceptional customer service** to investors worldwide, ensuring prompt assistance and grievance redressal.

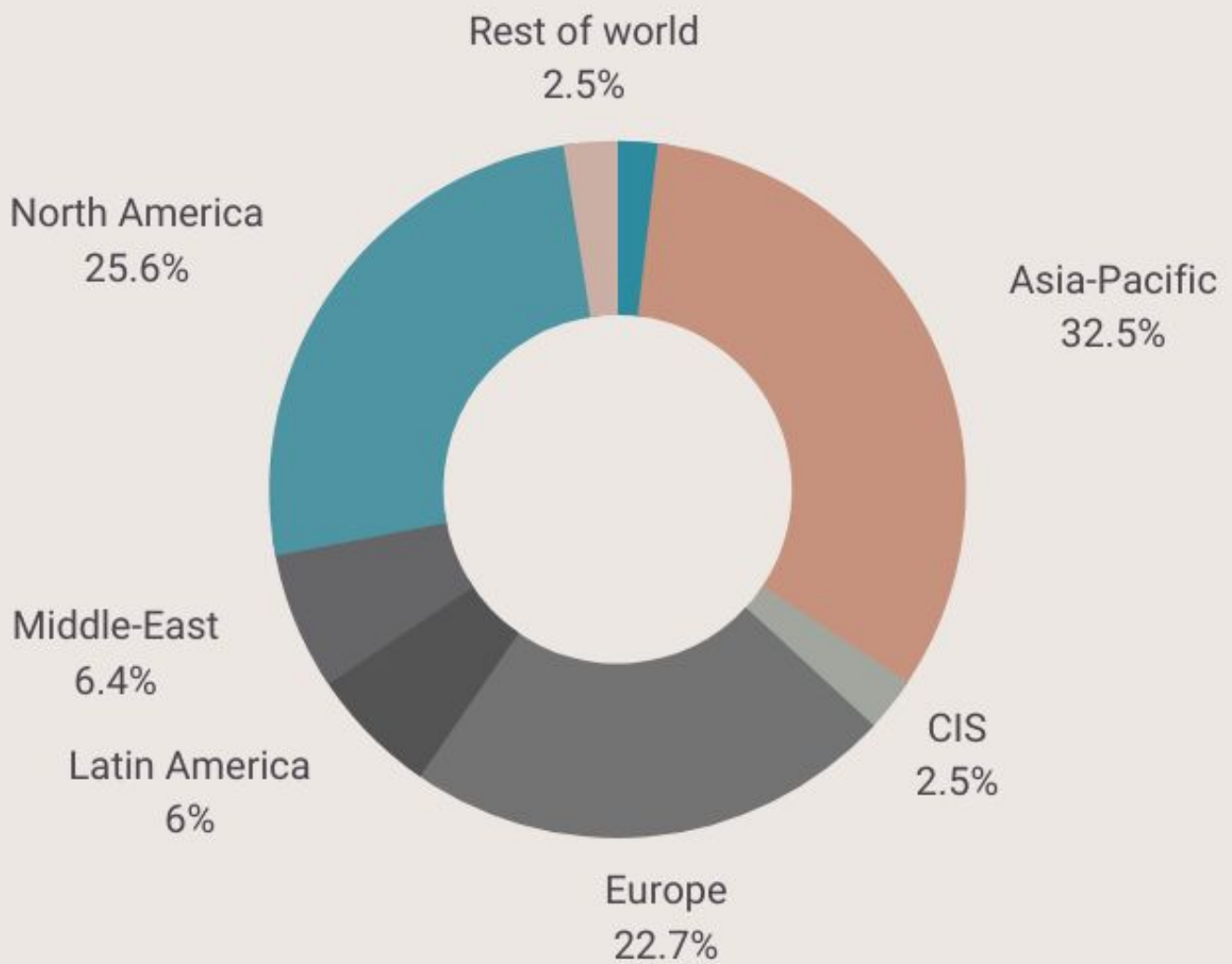
At the end of the year, the club realizes **substantial profits** from the operation of the Cessna 172.

Following the deduction of costs and a 10% fee taken by the club, the **remaining profits are distributed** among the token holders.

This mutually beneficial arrangement provides a **steady flow of income** for both the investors and the club.

This process repeats annually, allowing Skyward Wings Aviation Club to **sidestep the financial burden** of purchasing the entire aircraft upfront, expand its investor base, and streamline asset management.

REGIONAL DISTRIBUTION OF AVIATION DEMAND



Relevant Legal documents

- **Asset Tokenization Agreement:** This outlines the terms and conditions for converting an asset's ownership rights into digital tokens on a blockchain.
- **Blockchain Services Agreement:** This governs the relationship between the asset owner and the provider of blockchain services, detailing obligations, roles, and costs.
- **Custodian Agreement:** This establishes the terms for a custodian to hold and safeguard the physical and digital assets.
- **Data Privacy Agreement:** This contract ensures all involved parties adhere to privacy laws and regulations when handling token holder data.
- **Dispute Resolution Agreement:** This contract sets the procedures for resolving disputes arising from tokenization, such as arbitration or mediation.
- **Escrow Agreement:** This contract secures the assets until specific conditions are met.
- **Intellectual Property Rights Agreement:** This agreement protects proprietary technology or concepts used in the tokenization process.
- **Investor Agreement:** This defines the terms of the relationship between the token issuer and the investor, including rights, obligations, and potential returns.
- **KYC/AML/CFT Policy:** This policy ensures compliance with Know Your Customer norms, Anti-Money Laundering standards, and Combating of Financing of Terrorism.

- **Licensing Agreement:** This grants the right to use certain technologies, software, or intellectual property related to the tokenization process.
- **Non-Disclosure Agreement (NDA):** This protects confidential information related to the tokenization of the asset.





Hybrid Finance Blockchain (HYFI)

Hybrid Finance Blockchain (HYFI) is the world's **first regulated Internet of Value** powered by distributed ledger and web3 technologies.

The **conventional internet** enables the movement of data (email, PDFs, videos, pics, memes, etc) across the world at lightning speed.

HYFI enables the **movement of value** across the globe in seconds.

This value is in the form of dematerialized and fractionalized **real-world assets**: aircraft, art, carbon credits, collectibles, currencies, debt instruments, intellectual property, real estate, and more.

HYFI transactions are **atomic, fast, immutable, secure, and transparent.**

HYFI has **100% support for legal & regulatory compliance** including KYC, AML, CFT, Freezing of Funds, Consumer protection, Right-to-be-forgotten Regulations, and Data Privacy.

HYFI has been granted a **Limited Use Authorization License** as a **Fintech Entity** in the Innovation Sandbox by the International Financial Services Centres Authority (IFSCA).

IFSCA is a unified authority for the development & regulation of financial products, services & institutions in the international financial services centers in India.

Prior to the establishment of IFSCA, the domestic financial regulators, namely, RBI, SEBI, PFRDA, and IRDAI regulated the business in these centers.

HYFI technology's backbone

HYFI blockchain runs on **Multichain**, which is forked from Bitcoin Core - the most secure blockchain platform in existence.

This further strengthens the security of the HYFI network, as it inherits many of the security features & best practices that have been developed and tested over the years in the Bitcoin community.

HYFI cold nodes

In the HYFI blockchain, cold nodes are crucial in enhancing the system's overall security. By keeping private keys offline, users can minimize the risk of theft or unauthorized access to their assets.

HYFI metrics

HYFI has a block time of **2 seconds** and can process more than 1000 tps.

HYFI supports **millions** of addresses, assets, streams, and unlimited transactions & stream items.

It can handle **unlimited nodes** in the network.

The HYFI official site is: <https://www.hyfiblockchain.com>



Credits

- Images: Unsplash.com
- Tokenization Playbook by Rohas Nagpal
- Consensys - Blockchain in Aviation Leasing: A Game Changer for Airlines?
- IATA - Blockchain in aviation - exploring the fundamentals, use cases, and industry initiatives.
- Deloitte - Blockchain – a game changer in aircraft leasing?
- TrulyExperiences.com
- euFlightCompensation.com
- www.ibisworld.com - Global airline market size
- www.sciencedirect.com - Regional distribution of aviation demand

Hybrid Finance Blockchain HYFI



www.hyfiblockchain.com