



## Case study

# Building a Multichain Platform Solution for a Carbon Offsetting Company

Our client, a carbon offsetting company, aimed to create a blockchain-powered platform to tokenize and trade carbon offset certificates. Their vision was to provide an accessible solution for individuals and businesses to offset their carbon emissions transparently.

To bring this vision to life, we developed a multichain solution featuring two interconnected platforms: one tailored for retail customers (B2C) and another for businesses (B2B). We leveraged Tezos and Algorand blockchains to enable secure, decentralized transactions and introduced a user-friendly interface for engaging with the platforms.

## The client

Our client is a company providing carbon offsetting services. Their goal is to tokenize carbon certificates and sell them as blockchain carbon credits to individual and business customers separately, promoting transparency and sustainability.

## The challenge

The client approached us to build a blockchain-based platform capable of managing semi-fungible tokens (SFTs) representing carbon offset certificates. The initial requirements included using the Algorand blockchain for tokenization and a web interface for interacting with the tokens. However, the project faced several challenges:

- **Technical limitations.** The Algorand blockchain's smart contract language functionality didn't allow for implementing the customized token behavior, including complex interactions and specific conditions (e.g., managing the relationship between different token types or certificates).
- **User accessibility.** The client's end-users were largely unfamiliar with blockchain technology, so we needed to integrate a convenient payment option to ease their experience.
- **Performance constraints.** Decentralized storage solutions such as InterPlanetary File System (IPFS) resulted in slow data access, negatively impacting the user experience.
- **Certificate verification.** Platform users had to be sure the certificates for carbon credits on the blockchain were authentic, so we needed to set up a reliable verification mechanism and ensure users could access the verification information on the blockchain and in certificates.

## The result

The delivered solution included two interconnected blockchain platforms tailored to separate client groups:

- **B2B platform on Tezos** — facilitated the sale of complete carbon offset certificates to business customers and handled the complex logic of token trading for both platforms.
- **B2C platform on Algorand** — divided complete certificates into fractions (e.g., portions of one metric ton of CO<sub>2</sub>) and allowed B2C customers to purchase them separately.
- **A web interface** — allowed access to blockchain platforms for end-users and provided seamless fiat payments for non-blockchain users.

These platforms enabled the client to tokenize carbon offset certificates and offer a seamless experience across decentralized networks.

# Our approach

To develop a platform that met the client's unique needs, we first conducted a detailed analysis of their business goals and technical requirements. Initially, the client planned to use the Algorand blockchain exclusively, but we identified technical limitations in Algorand's smart contract functionality. After several rounds of discussion, we proposed a hybrid approach that combined Tezos and Algorand blockchains.

This allowed us to:

- Implement the required features while maintaining a decentralized structure for token logic
- Design the multichain platform to cater to two distinct audiences: a B2C platform for fractional certificate trading and a B2B platform for complete certificate sales
- Ensure seamless integration between the platforms through a common backend service
- Provide a fiat payment option to improve accessibility for non-blockchain users.
- Support our client's focus on the principles of sustainability, as Tezos is an energy-efficient, "green" blockchain just like Algorand.













Once the client approved our plan, we formed a **dedicated team**, selected a suitable tech

## Multichain platform project details

### OUR TEAM

- 1 Business analyst
- 1 Project manager
- 1 Product specialist
- 3 QA engineers
- 1 DevOps engineer
- 2 Frontend developers
- 3 Backend developers
- 1 Blockchain developer
- 1 UX Designer

### TECHNOLOGY STACK

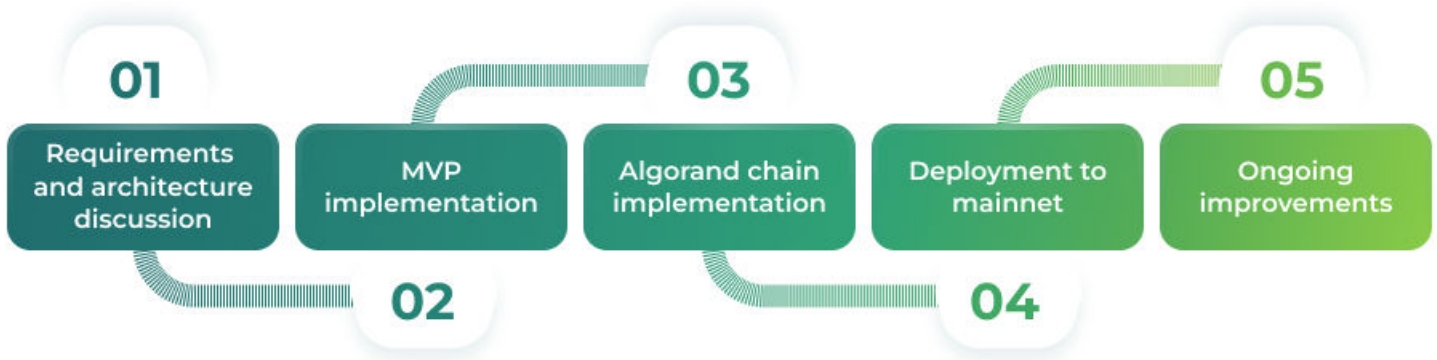
<b>BLOCKCHAINS</b> Tezos, Algorand  	<b>LANGUAGES</b> SmartPy, JS, TS  
<b>FRAMEWORKS</b> AlgoSdk, Node.js, ReactJs  	<b>DATABASES</b> MySQL 
<b>CLOUD AND SERVICE PROVIDERS:</b> AWS, IPFS, Stripe, Purestake, TzKT     	



## How we did it

To build a multichain blockchain solution, we followed a structured approach that included defining requirements, developing a hybrid architecture, implementing core functionalities, and ensuring seamless integration between Tezos and Algorand platforms.

### Multichain platform development process



## Step 1. Requirements and architecture discussion

We worked closely with the client to define the project scope and evaluate the feasibility of their initial requirements. Due to limitations in Algorand's programming capabilities, we proposed building the MVP version on Tezos and adding Algorand later. This way, the solution would have tradable semi-fungible tokens with custom on-chain logic.

## Step 2. MVP development

First, we focused on developing the core logic on the Tezos blockchain and implementing the following functionality:

- Tokenization of carbon offset certificates into semi-fungible tokens
- A Web UI for interaction with tokens
- Decentralized storage of all data on Tezos and IPFS

This MVP provided a live example for the client to validate their business idea and refine the solution.

## Step 3. Algorand chain implementation

Building on the MVP, we introduced a dual-platform architecture with separate interfaces for B2B and B2C audiences. To accommodate the client's preference for Algorand, we expanded the solution to integrate both blockchains. At this stage, our team:

- Connected the Tezos and Algorand platforms via a shared backend service to ensure seamless operation.
- Addressed performance bottlenecks in IPFS by introducing a caching layer on the backend and optimizing data structures.
- Integrated Stripe payments managed through the backend to accommodate non-crypto users.
- Set up automatic deployment pipeline and secure environment

As a result, the Algorand platform allowed retail customers to purchase fractional certificate shares, while the Tezos platform facilitated complete certificate sales for businesses.

## Step 4. Testing and deployment to mainnet

Before launching the platform on the mainnet, we conducted thorough [security testing](#) and a third-party audit to ensure the solution was robust and secure. After addressing minor findings, we deployed the platform, allowing users to tokenize and trade carbon offset certificates effectively.

## Step 5. Ongoing improvements

The client now has a working platform that leverages the strengths of both Tezos and Algorand blockchains to tokenize carbon offset certificates and offer them to a diverse audience.

The B2C platform allows retail customers to purchase fractional shares of certificates, while the B2B platform supports the sale of entire certificates to businesses. These solutions promote transparency and accessibility in carbon offsetting.

Following the release, we initiated discussions with the client to identify additional functionality that could enhance the platform's capabilities and user experience. We are currently working on enabling users to sell carbon credit certificates to the platform to expand the platform's capabilities and impact.

## The impact

The client now has a working platform that leverages the strengths of both Tezos and Algorand blockchains to tokenize carbon offset certificates and offer them to a diverse audience.

The B2C platform allows retail customers to purchase fractional shares of certificates, while the B2B platform supports the sale of entire certificates to businesses. These solutions promote transparency and accessibility in carbon offsetting.

We are currently working on adding new functionality to further enhance the platform's capabilities, expand its user base, and support the client's mission of combating climate change through innovative technology.

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