

# Questionnaire from Circle

## PWC Report on Stablecoins

# Questionnaire

---

## Overview

Questionnaire answered in relation to USD Coin (USD//C), issued by Circle, a member of the CENTRE open source consortium, which is defining standards and policies for fiat stablecoins as well as enforcing a governance scheme for issuers of CENTRE-enabled technology.

---

- a. General
  - i. **Which blockchain / DLT are you building on top of?**  
The ethereum blockchain - USDC is an ERC20 token.

**ii. How does the stablecoin work?**

USDC is a fully collateralized US Dollar stablecoin. At a high level, customers on-board through a USDC on-ramp, such as the Circle USDC issuing service, and wire funds into the system. The on-ramp then executes a series of commands with the CENTRE network to tokenize the funds received and give the customer USDC tokens. The deposited US Dollars are moved to reserve bank accounts. The customer can transfer the USDC tokens to compatible wallets or exchanges (subject to the token's compliance controls).

Redemption follows the reverse sequence: USDC tokens can be transferred to an off-ramp such as the USDC Circle web application. Upon successful verification and validation, US Dollars from underlying fiat reserves are transferred to the customer's external bank account while the corresponding USDC tokens are taken out of circulation.

More details on the technology can be found in the CENTRE whitepaper:  
<https://www.centre.io/pdfs/centre-whitepaper.pdf> .

**iii. What is the purpose of your coin? What does it aim to achieve and which problems does it solve?**

Price-stable tokens are foundational requirements for enabling powerful new global financial contracts, products, and services on the internet. A safe, transparent and trustworthy layer for fiat to operate over open blockchains and within smart contracts is a necessary precondition to the broader and more revolutionary potential of a crypto-powered global economy. USDC aims to meet this need.

The major application for fiat stablecoins over the last 18 months has been as a mechanism for trading and hedging in global crypto capital markets. Investors and traders need seamless on and off-ramps for fiat currency into the exchange ecosystem, which can be built on ERC20 standard for USDC, and need to be able to hedge in and out of volatile crypto assets, as well as move stable value across exchange venues to seek arbitrage and liquidity opportunities. Beyond the crypto exchange use case, very often we hear industry players point out that there is no obvious stablecoin solution they could choose to incorporate into their own projects. These are broad use cases that have potential to revolutionize the global economy. As developers all over the world build creative protocols, platforms and applications on top of blockchain and smart contracts infrastructure (particularly around the Ethereum ecosystem), they often need a digital, tokenized paradigm for fiat money that they can reuse for their solutions. As with other technology components, the stablecoin of choice has to be open, interoperable, safe, transparent and trustworthy. The underlying technology for USDC was designed by CENTRE to effectively become that solution which can enable payments, lending, commerce, investments use cases, as well as further applications within financial contracts such as derivatives contracts, insurance contracts and security tokens, and much more.

**iv. When we say something is stable what do you think it means? And when it comes to monetary policy specifically?**

It means providing a level of certainty that a relatively narrow range of price against a reference asset can be sustained over the long run.

**v. What is your revenue model?**

Circle charges a fee for allowing customers to redeem USDC and cash out US Dollars to their bank accounts, and also charges the applicable transaction (gas) fees on the ethereum network for outbound transfers. Other CENTRE members may choose to monetize fiat stablecoin tokens in different ways.

**b. Launch & marketing**

**i. What does the market need to be confident in the stability of your token?**

Circle, as a member issuer of CENTRE, will be required to work with auditing partners to provide regular attestations of the fiat reserves that back USDC, and to report on those in a transparent way.

**ii. How are you bootstrapping to that level of confidence?**

CENTRE members, such as Circle, who implement the fiat stablecoin framework and become token issuers are governed across several vectors: that they are properly licensed to meet applicable financial service regulatory requirements (e.g. hold money transmission licenses in the US) in relation to stablecoins; that they are in compliance with applicable laws and regulations; and that they can provide regular and transparent attestations of balances held in US Dollar reserves.

Circle has partnered with a major global auditing firm and will in time begin publishing attestations on the fiat reserves held.

**iii. What are your go-to-market strategies?**

Initially by ensuring USDC is properly distributed to interested customers around the world through trading on major crypto exchanges. Besides the trading vector, USDC is currently supported by more than 30 companies across the industry, including protocols, platforms, applications and wallets. These partners will play an essential role in forming a broad and inclusive ecosystem around USDC.

c. Economics

**i. What is your coin stable with respect to?**

The US Dollar. USDC is a fiat collateralized stablecoin.

**ii. How much volatility can this peg withstand? Is that the same for upwards and downwards pressure? How wide is the band of behavior it can support?**

Given the full collateral model, the US Dollar reserves held by USDC issuers operate as a buy wall equal in size to 100% of the circulating supply of the stablecoin at any point in time. Such a peg can withstand any amount of upwards and downwards pressure, and price volatility on exchanges will be seen as arbitrage opportunities by liquidity actors, therefore unlikely to last for long.

**iii. How easy is it to analyze the band of behavior from which it can recover?**

N/A

**iv. How expensive is it to maintain the peg/stability mechanism?**

--

**v. How transparently can traders observe the true market conditions?**

The peg is maintained by ensuring a 1:1 ratio of US Dollar reserves to USDC tokens at the issuer level. Traders can observe market conditions by looking at publicly available exchange trading data.

**vi. Which monetary theory (theoretical) assumptions do you think are not true and how does your protocol account for that? Does your stablecoin supply scale in response to demand? If so, how?**

No comment

**vii. Does your stablecoin supply scale in response to demand? If so, how?**

USDC supply can only increase with the prior deposit of corresponding US Dollars. Liquidity providers are primarily the actors interested in tokenizing US Dollars at scale to supply the demand on exchanges.

**viii. Who provides the capital to maintain exchange rate peg? How are they compensated / Why do you think they would continue to lock up capital, given other investment opps?**

The US Dollar reserves backing USDC are provided by customers themselves, although liquidity providers tend to do that at larger scale. Customers are not compensated in any way for depositing US Dollars; instead they get 1:1 the amount USDC tokens which can be brought to exchanges for trading or to other wallets and services where there is utility.

ix. **An eventuality plan in case of a “black swan” event.<sup>1,2</sup> The 1% case will happen eventually.**

No comment

d. Tech

i. **Are any novel consensus mechanisms used, over and above the underlying blockchain?**

No

ii. **What transaction throughput can the blockchain currently handle and how does it plan to scale? Do its plans coincide with your plans for your estimated demand?**

USDC throughput is currently dependant on the Ethereum blockchain. As payments and settlement use cases using USDC gain traction, CENTRE intends on bringing solutions around state channels and other scaling approaches to the industry.

iii. **What tradeoffs does your protocol make and why did you make those tradeoffs? (supply/demand, temporarily peg breaking) (censorship resistance) (privacy tradeoffs) (accuracy of present market data and ease of manipulation of the data feed protocol uses (responsiveness of market and ease of manipulation)**

The Ethereum blockchain was chosen given the rich developer ecosystem around it, but one could say other choices are available. At this point we believe an asset backed approach is the most pragmatic one for implementing a stablecoin, but again there are other approaches available. Finally, CENTRE understands that for a stablecoin to become an open standard for fiat money on the Internet, it has to operate within the boundaries of local laws and regulations, to maintain a safe ecosystem for all parties involved, and to strive for openness and transparency.

iv. **Are there any centralized components of your system? Would any of these be easy for govts to shut down?**

The CENTRE model was built to be compliant with issuers’ local laws and regulations. The model is designed for multiple issuers (Circle is the first of several forthcoming CENTRE members to launch USDC issuance), and each issuer uses multiple banking partners for maintaining US Dollar reserves.

v. **Does your protocol require information outside the blockchain such as a feed of price data? If so, how does this oracle work? Who manages it, what are the incentives for managing it, and what happens if the data they provide has a glitch?**

Not applicable, USDC is a fully collateralized US Dollar stablecoin.

vi. **Which participants can see which transactions? What is the data and metadata available, and to whom? How does this impact privacy?**

Transactions are recorded publicly on the Ethereum blockchain. Over time, research around the use of zero knowledge proofs can enhance the privacy of participating actors.

vii. **Are you doing anything with formal verification? Smart contracts used?**

No

viii. **What is the rebase period? (Length of time between currency adjustments.)**

There is no rebasing process, USDC is a fully collateralized US Dollar stablecoin.

ix. **Can we make this automated?**

--

x. **Do we use a smart contract, or network rules of the blockchain operators?**

N/A

e. Regulation

**i. What are your perceptions of local and global regulation in supporting stable coin, asset backed token economies?**

Circle's USDC gateway provides a regulated on and off ramp that operates within the framework of US money transmission laws, with oversight from the US Treasury department, and US state banking supervisors.

To date there has been no "global regulation" or harmonised regulatory response in relation to crypto assets or stablecoins but the Circle Group is actively working with a number of different regulators and governments across the globe to assist with these efforts. Regulatory clarity is needed for the industry to thrive. Circle's work with industry bodies like Global Digital Finance (<https://www.gdf.io/>) which drives the acceleration and adoption of digital finance technologies to support the next era of digital commerce is immensely helpful to move the dial on this.

**ii. What could be done to improve regulation in terms of speed, quality, value for your company?**

A harmonised global response providing regulatory certainty when it comes to treatment of crypto assets and services generally will help the industry as a whole.

f. Testing

**i. What kind of simulations have you done and what have they helped you learn? (simulating broad array of market conditions)**

**1. Mental models for simulations**

N/A

**2. Econometric models**

N/A

**3. Agent-based Modelling / Computer simulations**

N/A

**4. Other (Please describe)**

N/A