

UX AUDIT REPORT

JULY 2023

High level expert review
Heuristic evaluation & user interviews



Curve



In this report

1. INTRODUCTION - *What we did*

- Executive Summary
- Goals and objectives

2. METHODOLOGY - *Process and Methods*

- Nielsen's Heuristic Evaluation
- Ben Shneiderman's 'Eight Golden Rules of Interface Design
- Arnold Lund's 34 Usability Maxims
- Norman's Theory of Action
- Web3 Design Audit Checklist Based on Web3 Design Principles by Beltran

3. FINDINGS - *What we tested on*

- Recommendations

4. INSIGHTS AND NEXT STEPS - *What we tested on*

- Recommendations

INTRODUCTION



EXECUTIVE SUMMARY

In this comprehensive UX audit, we conducted an expert review of Curve Finance user experience based on Web3 usability guidelines and expert review checkpoints. The aim was to assess the platform's alignment with industry best practices, ensuring a seamless and user-centric experience for all users interacting with Web3 technologies.

Our review focused on evaluating critical aspects such as platform accessibility, navigation, search functionality, user education, error handling, and the integration of Web3 wallet functionalities. Through a meticulous assessment, we identified several areas that require immediate attention to enhance the overall user experience.

247 WEB USABILITY GUIDELINES

This review focused on evaluating critical aspects such as platform accessibility, navigation, search functionality, user education, error handling, etc. Through a meticulous assessment, we identified several areas that require immediate attention to enhance the overall user experience.

UX PRINCIPLES	COMPLIES	DOESN'T COMPLY	NOT APPLICABLE	COMPLIANCE RATE
Task orientation	19 Criteria	11 Criteria	Null	63%
Navigation and IA	12 Criteria	12 Criteria	Null	50%
Forms and data entry:	11 Criteria	5 Criteria	1 Criteria	64%
Trust and credibility	9 Criteria	1 Criteria	Null	90%

UX PRINCIPLES	COMPLIES	DOESN'T COMPLY	NOT APPLICABLE	COMPLIANCE RATE
Writing and content quality	16 Criteria	2 Criteria	Null	88%
Page layout and visual design:	31 Criteria	9 Criteria	Null	77%
Search usability	6 Criteria	13 Criteria	Null	31%
Help, feedback and error tolerance	10 Criteria	20 Criteria	Null	33%
Total	114 Criteria	73 Criteria	Null	60%

REVIEW BASED ON WEB3 UX PRINCIPLES BY BELTRAN

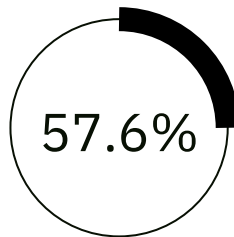
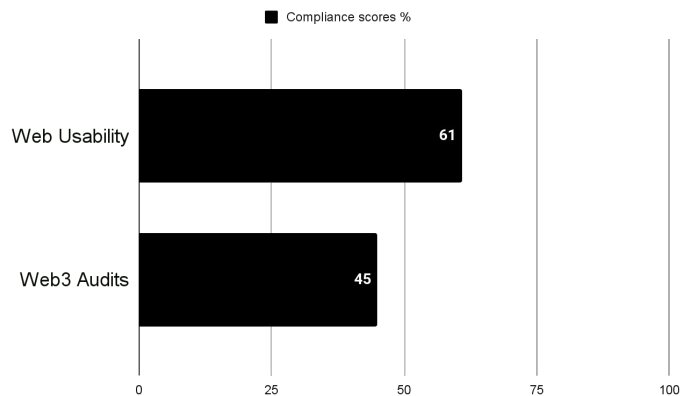
This review focused on evaluating critical aspects involved in the integration of Web3 wallet functionalities.

UX PRINCIPLES	COMPLIES	DOESN'T COMPLY	NOT APPLICABLE	COMPLIANCE RATE
Transparency of Data provenance	2 Criteria	2 Criteria	Null	50%
Transparency of Transactions	4 Criteria	2 Criteria	Null	66%
Transparency of Smart Contract	1 Criteria	2 Criteria	Null	33%
Transparent User interaction History	1 Criteria	2 Criteria	Null	33%
Transparency of Code	2 Criteria	5 Criteria	Null	40%

UX PRINCIPLES	COMPLIES	DOESN'T COMPLY	NOT APPLICABLE	COMPLIANCE RATE
Human Readable Hashes Format	2 Criteria	2 Criteria	Null	50%
Time/Wait Management	1 Criteria	1 Criteria	Null	50%
Permanent Newbie Mode	0 Criteria	3 Criteria	Null	0%
Sense of Community	4 Criteria	0 Criteria	Null	100%
Total	2 Criteria	2 Criteria	Null	44%

SOCIAL MEDIA STATS

Overall Compliance percentage



Usability Score

MODERATE

Users should be able to use this site or system and complete most important tasks, however the user experience could be significantly improved.

Overall Compliance

136/236

Overall non compliance

100/236

PRODUCT OVERVIEW

Curve Finance is a decentralized finance (DeFi) protocol built on the Ethereum blockchain. It focuses on providing efficient and low-slippage trading for stablecoins and other similar assets.

The primary goal of Curve Finance is to enable users to swap between different stablecoins at minimal cost and with minimal slippage.

CONTEXT OF THE AUDIT

This study involved collecting a rich research database consisting of detailed observations and findings which includes recordings of the most insightful user interviews conducted during the research process. These valuable resources complement and support the findings presented in this report.

METHODOLOGY



METHODOLOGY

This report summarizes the findings of a comprehensive UX audit conducted on Velodrome Finance platform.

The audit utilized a combination of renowned UX methodologies, including Nielsen's Heuristic Evaluation, Ben Shneiderman's 'Eight Golden Rules of Interface Design, Arnold Lund's 34 Usability Maxims, Norman's Theory of Action, and the Web3 Design Audit Checklist Based on Web3 Design Principles by Beltran.

The purpose of the audit was to assess the user experience and identify areas for improvement to enhance usability and overall satisfaction

SEVERITY SCALE

Critical

Severely impairs the use of the product and cannot be overcome by users. It is necessary to fix this before releasing the product..

Serious

Occurs frequently and persistently, or users may not be able to resolve the issue or may not be aware of it. It's important to fix this, so give it a high priority..

Medium

May occur more often or be harder to overcome. Fixing this should be a low release priority.

Low

Can be easily overcome by the user or occurs very rarely. The release does not require repair unless additional time is available.

FINDINGS



BUSINESS GOALS

- The business goal of Curve Finance is to provide a decentralized finance (DeFi) platform that specializes in efficient and low-slippage trading for stablecoins and similar assets. The primary objective is to create a platform that offers users a seamless and cost-effective way to swap between different stablecoins while minimizing price slippage. By focusing on stablecoin trading, Curve Finance aims to provide users with a reliable and efficient trading experience in the DeFi ecosystem.
- Curve Finance also aims to incentivize liquidity provision through its liquidity pools, where users can deposit their stablecoins and earn trading fees. By attracting liquidity providers, Curve Finance aims to deepen the liquidity in its pools, enhance the stability of its trading pairs, and provide better trading opportunities for users.
- In addition to trading, Curve Finance seeks to enable users to generate yields on their stablecoin holdings. By engaging in yield farming or other yield-generating strategies within Curve Finance, users can earn additional returns on their deposited assets.

CUSTOMER GOALS

- Efficient Stablecoin Swapping: Users of Curve Finance aim to quickly and cost-effectively swap between different stablecoins with minimal slippage.
- Seamless Liquidity Provision: Customers of Curve Finance, particularly liquidity providers, desire a platform where they can deposit their stablecoins into liquidity pools.
- Yield Generation Opportunities: Curve Finance customers are interested in yield generation strategies and opportunities within the platform. They aim to earn additional returns on their stablecoin holdings by engaging in yield farming or other yield-generating activities facilitated by Curve Finance.
- Trust and Security: Customers of Curve Finance prioritize the security of their assets and personal information. They seek a platform that implements robust security measures, undergoes regular audits, and provides a trustworthy and secure environment for their DeFi activities.
- User-Friendly Experience: Curve Finance customers value a user-friendly platform that is easy to navigate, understand, and use. They appreciate intuitive interfaces, clear instructions, and helpful guidance to ensure a smooth and hassle-free experience when interacting with the platform.

FINDINGS

Heuristic Used

Select the appropriate heuristics principle that matches the usability issue you've identified.

Severity

From the severity scale, select the appropriate rating for the usability issue you've identified.

Issue and Recommendation

Describe the usability issue and spell out your recommendations for UX improvements.

ONBOARDING AND FIRST IMPRESSION

The primary goal of the onboarding process is to help users understand and become proficient in using the product, thereby reducing any potential barriers to adoption and improving overall user satisfaction. It sets the stage for a positive user experience and lays the foundation for long-term engagement and retention.



Heuristic Used

Recognition rather than recall

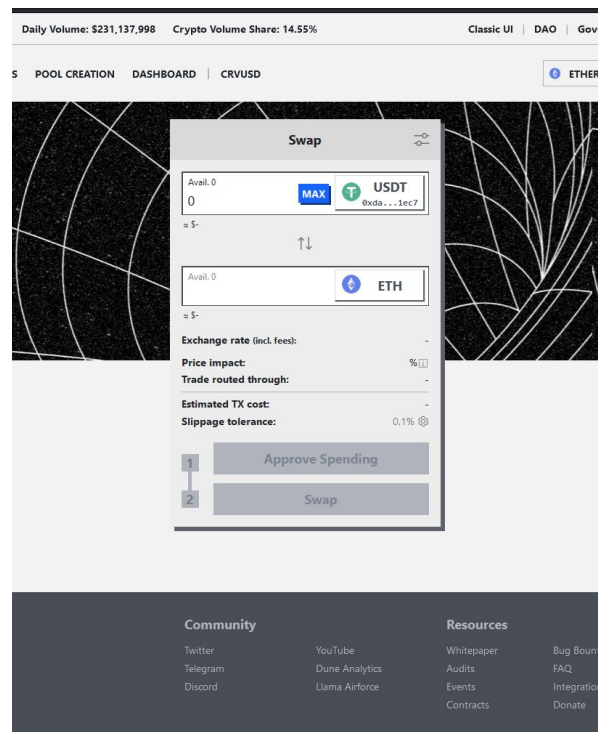
First Impression/ Lack of Educational Onboarding Process.

Issue (MEDIUM)

- There is no onboarding experience for new users
- Users are taking directly to the swap feature with no clear indication of what to expect

Recommendation

Create a homepage with introduction of the platform and its features



NAVIGATION AND INFORMATION ARCHITECTURE

System or mechanism that allows users to move through different sections, pages, or features of a digital product. It includes menus, links, buttons, search bars, and other interactive elements that help users find and navigate to desired content or perform specific actions. Effective navigation design ensures that users can easily understand and access different areas of the product, enhancing usability and user satisfaction.

Information architecture (IA) involves the organization and structure of information within a digital product to facilitate efficient and intuitive access. It focuses on grouping and categorizing content in a logical and meaningful manner, ensuring that information is well-organized, easily discoverable, and understandable to users



Heuristic Used

Consistency and standards

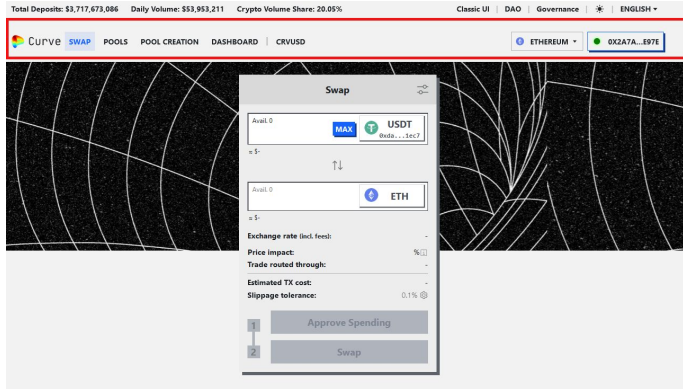
Navigation is not Entirely Clear.

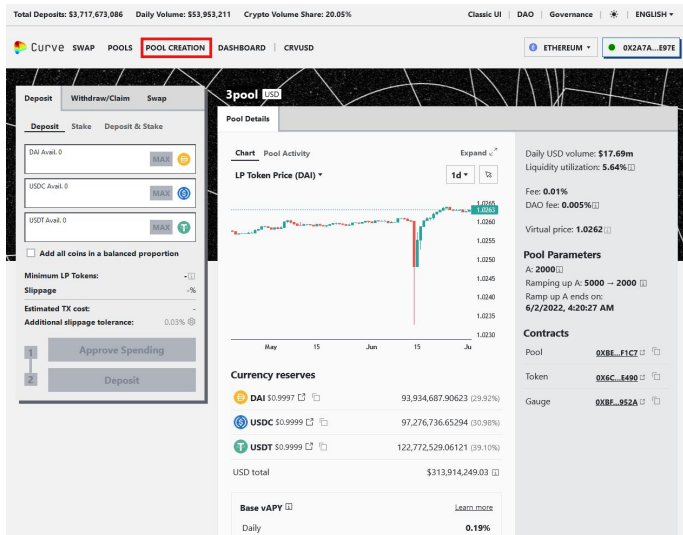
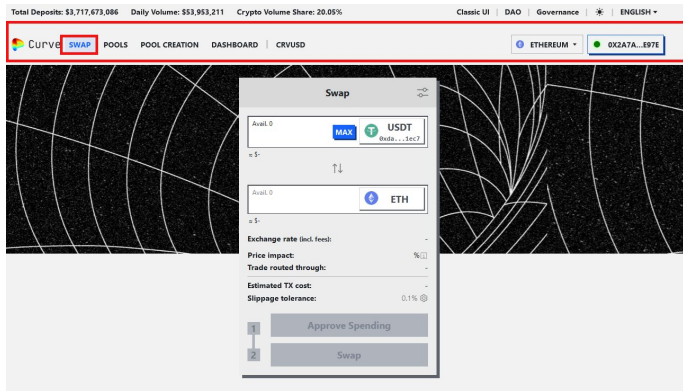
Issue (MEDIUM)

- When you first land on Curve Finance, the the UI will present you with the top navigation bar with multiple click areas that leads to numerous different menus and overlays. It is not easy to contextualize how these all fits in the overall flow.

Recommendation

Rethink the navigation and potentially regroup some elements under the same menu.





Heuristic Used

Flexibility and efficiency of use

Navigation is not Entirely Clear.

Issue (MEDIUM)

- Curve Finance places the token swap and pool investment features at the same level of the information architecture. While the token swap feature is easily accessible, there is no straightforward method to swap tokens and deposit them into the pool.

Recommendation

To enhance the Curve user experience, Curve should can consider implementing the following measures :

Let the user flow lead from the first interaction point to the next .

TASK COMPLETION AND FORMS

People go to web sites to achieve particular goals, not to look around and admire the design. This means web pages need to support customer tasks. A site is task oriented when it supports users in the effective and efficient completion of their tasks.

Forms are the components of a site that allow the customer to interact with the organisation. Well designed forms provide access to rich functionality while asking for the minimum of input from the customer.



Heuristic Used

Visibility of system status

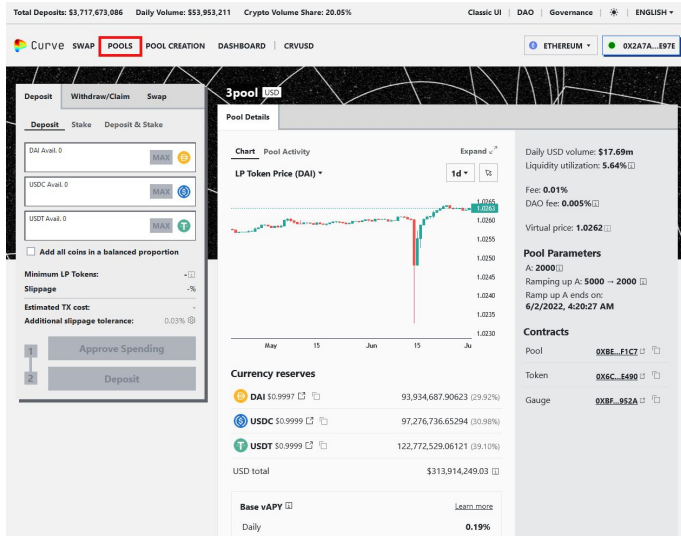
Broken Links

Issue (SERIOUS)

- As a first time user, after clicking on the pool button , the user is not provided with any Indicator to indicate that their request is being processed.

Recommendation

Add an empty state as feedback after clicking Pool button as a user without any pool participation

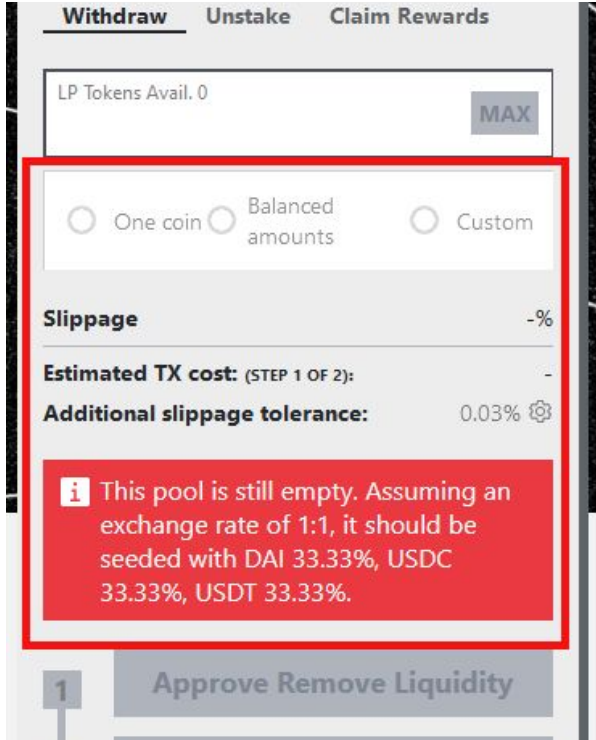


ERRORS, HELP AND LEARNABILITY

These guidelines help assess if the site helps prevent customers from making errors. A site is error-tolerant if, despite evident errors in input, the intended result may be achieved with either no or minimal corrective action by the customer.

For novices and experts alike there should be readily available ways for them to become comfortable with using your product. Easy access to FAQs, onboarding etc.





Heuristic Used

Help and documentation

Lack of contextual help.

Issue (LOW)

- Curve caters primarily to experienced web3 users with its minimalist design. There is lack of instructions and proactive help to guide users in navigating its interface. It works with the assumption that all DeFi users know their way around Curve Finance.

Recommendation

Include basic instructions on the interface, rather than relying solely on separate documentation that requires additional effort to locate.

Heuristic Used

Help and documentation

Lack of contextual help.

Issue (MEDIUM)

Strange blockchain terminology and the complexity of blockchain platforms can be challenging for the first time users. In Curve Finance, there is a lack of instructions and contextual information to associated with a task. On top of that, much of the terms displayed has no explanation.

For example, there are some terms in DeFi space used in Curve Finance that doesn't align with the established mental model of mainstream users:

- What is a pool preset?
- What is mid and out fee?
- What are pegged tokens?

CREATE CURVE POOL

POOL TYPE > **TOKENS IN POOL >** **POOL PRESETS >** **PARAMETERS >** **POOL INFO >**

Pool Type

Stableswap
Bonding Curve specialising in pegged assets.

Cryptoswap
Bonding Curve specialising in unpegged assets.

Learn more: Creating Stableswap pools

Learn more: Creating Cryptoswap pools

POOL SETUP

No pool type selected

Tokens In Pool:
No tokens selected

Pool Presets:
Preset: No preset set

Parameters

Mid Fee: 0.26%
Out Fee: 0.45%
Initial Price: No initial price set

Pool Info:

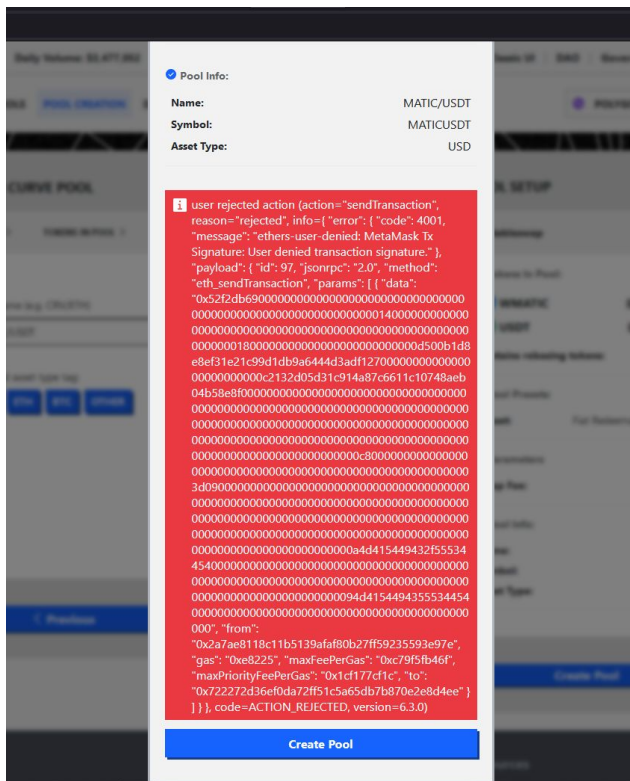
Name: No name set
Symbol: No symbol set
Asset Type: No asset type set

Create Pool

Next >

Recommendation

There should be some basic instructions in the app, not just on separate documentation requiring locating effort. Whenever necessary, provide timely, contextual information to assist to users.



Heuristic Used

Error prevention

Description of the issue

Issue (LOW)

- On Curve Finance, when users reject creating a new pool due to low gas fees, it shows an error message. The message reads like gibberish to the average user.
- The error message displayed in this scenario is lengthy and not easy to understand.

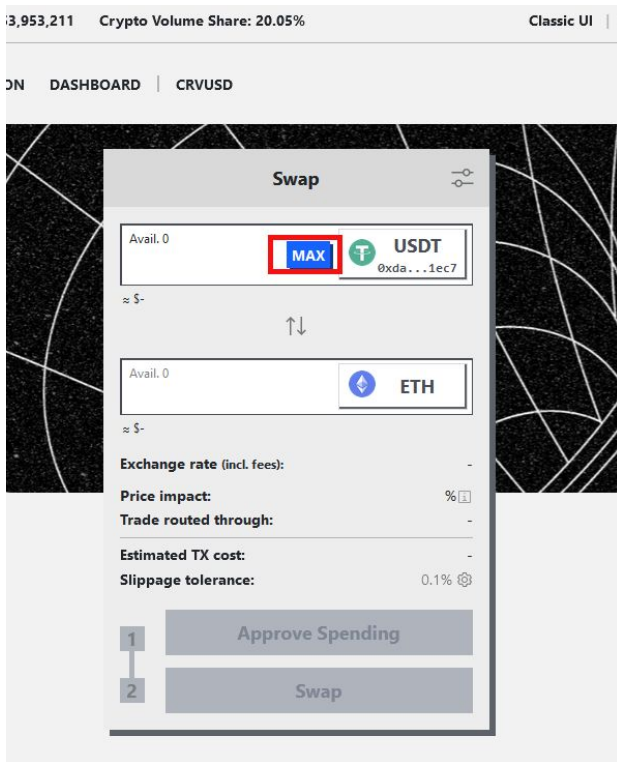
Recommendation

Provide a clear error message that explicitly indicates that the transaction is rejected, and give advice that caters to novice users and users who wish to initiate a pool. In addition, give context to all transaction states.

CONTENT AND DESIGN

The content and design in UX are interconnected and must work together harmoniously. Content should be presented in a visually pleasing manner, utilizing appropriate typography and formatting to enhance readability. Design choices should also consider the content's hierarchy, emphasizing important information and guiding users through the interface. Balancing visual aesthetics with clear and effective communication is essential for creating a positive user experience.





Heuristic Used

Aesthetic and minimalist design

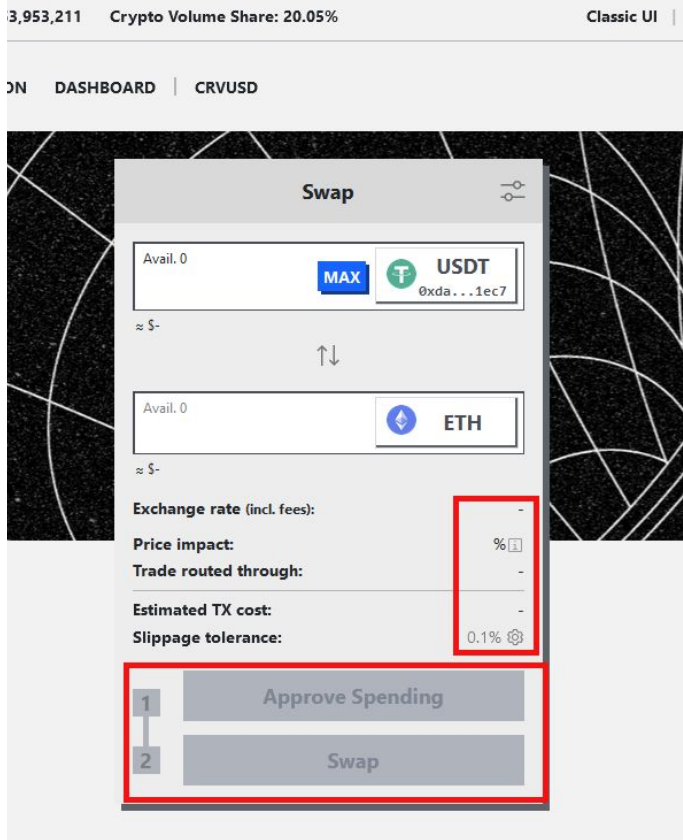
Misleading feature to maximize the deposit amount

Issue (LOW)

- The “Max” deposit button on the pool page can mislead users. While it allows for a quick and easy way to deposit the maximum amount of funds, users should be mindful to reserve some funds for gas fees.

Recommendation

Remind users to be cautious when using the “max” deposit button. Users should be aware that gas fees can fluctuate and vary based on price range and may not have enough funds for the transaction after maximizing the amount. Providing this information to users can help them avoid costly mistakes.



Heuristic Used

Aesthetic and minimalist design

Low Contrast

Issue (LOW)

- Grey buttons with grey backgrounds give little contrast in the day mode

Recommendation

Increase contrast between elements on screen

TRANSPARENCY OF DATA PROVENANCE

- Does the application clearly indicate which data comes from the blockchain and which does not?
- Are the addresses of the contracts clearly stated?
- Are all blockchain data linked to independent blockchain explorers?
- Is it clear which data comes from oracles?



Issue (LOW)

- Curve does not clearly indicate which data originates from the blockchain and which data does not.
- Furthermore, the addresses of the contracts are not clearly stated within the platform. This omission hampers the ability to verify the authenticity and integrity of the smart contracts involved, hindering transparency and exposing potential risks.
- Moreover, the platform does not provide clear indications regarding the origin of data from oracles.

Recommendations

- Improve Data Indication: Clearly differentiate between data originating from the blockchain and data from other sources.
- Address Contract Address Visibility: Ensure that contract addresses are prominently displayed within the platform, allowing users and auditors to easily verify and authenticate the contracts.
- Enhance Oracle Data Transparency: Clearly disclose the sources of data obtained from oracles, including information about the oracle providers, methodologies used, and data validation mechanisms.

TRANSPARENCY OF TRANSACTIONS

- Are irreversible actions clearly indicated?
- Are actions involving money or value clearly indicated?
- Are actions that could potentially lead to user identification clearly indicated?
- Are actions that generate new contracts in the user's name clearly indicated?
- Does the application clarify and confirm the new future state in advance?
- Is the data being used for a transaction shown in a human-readable format?
- Are suggested values for gas price clarified and how to overwrite the transaction?
- Is transaction wait time managed effectively



Issue (LOW)

- Curve fails to clearly indicate actions that could potentially lead to user identification. This lack of clarity raises significant concerns regarding user privacy and data protection.

Recommendations

- Improve User Identification Disclosure: Clearly indicate any actions or processes that may result in user identification, ensuring users are informed about the potential risks and implications.

TRANSPARENCY OF CODE

- Is it clear which blockchain is being used?
- Are the addresses of the Smart Contracts used in read/write operations clarified?
- Is it clear which code is open source and where to find it?
- Is it clear where code is being run (local vs remote server)?
- Is the web3 provider / Blockchain node clarified?



Issue (LOW)

- Open-Source Code Clarity: It is not clear which code is open source and where to find it. This lack of transparency inhibits users from reviewing and validating the codebase, limiting their ability to assess security measures.
- Code Execution Indication: The platform does not clearly indicate whether the code is being run locally on the user's device or on a remote server.
- The platform does not make it clear which data originates from oracles or has been influenced by oracles.

Recommendations

- Open-Source Code Disclosure: Clearly indicate which code is open source and provide accessible references to the code repository. Code Execution Visibility: Clearly communicate whether the code is executed locally or on a remote server, addressing concerns related to data privacy, security, and external dependencies.
- Clearly indicate when data is sourced from or influenced by oracles. This transparency will empower users to differentiate between data from different sources.

TRANSPARENCY OF SMART CONTRACT EVENTS

- Are all events, even those for developer purposes, clarified and made accessible to the end user?
- Are interrupting messages shown only for information relevant to the current user?
- Can users subscribe to, unsubscribe from, or temporarily mute certain events?



Issue (LOW)

- The platform does not clarify or make all events, including those for developer purposes, accessible to the end user. This lack of transparency hinders users' understanding of the platform's operations and limits their ability to fully engage with the available functionalities.
- The platform does not provide users with the ability to subscribe to, unsubscribe from, or temporarily mute certain events. This lack of functionality limits user control and personalization, hindering the platform's usability and customization options.

Recommendations

- Clearly indicate and make accessible all events, including those for developer purposes, to the end user. Providing users with visibility and clarity about system events will enhance their understanding of the platform's operations and empower them to make informed decisions.
- Implement functionality that allows users to subscribe to, unsubscribe from, or temporarily mute certain events. This customization feature will enhance user control and personalization, allowing them to tailor their experience to their preferences and needs.

TRANSPARENCY AND ACCESSIBILITY OF USER'S INTERACTION HISTORY

- Does the application provide a history of all transactions from a given address?
- Is it clear where the history is stored (local or server)?
- Are tools provided to navigate, search, export, and delete the history cache?



Issue (MEDIUM)

- This absence of transaction history significantly limits the user's ability to track and review their past activities, hindering transparency and user engagement.
- Moreover, Curve does not provide users with the necessary tools to navigate, search, export, or delete the history cache. This lack of functionality restricts users from efficiently managing and leveraging their transaction history, impacting usability and user control.

Recommendations

- Implement a dedicated section that provides users with a clear and complete transaction history for a given address. This feature will empower users to review and analyze their past activities, fostering transparency and accountability
- Robust History Management Tools: Introduce user-friendly tools to navigate, search, export, and delete the history cache. These features will enable users to efficiently access and manipulate their transaction data, enhancing usability and user control.

TIME/WAIT MANAGEMENT

- Does the application clarify blockchain specific times and manage user's wait in various phases?
- Are liveness indicators shown during waiting time?



Issue (LOW)

- Curve fails to adequately clarify blockchain-specific times and manage user's wait in various phases. This lack of clarity and management significantly impacts the user experience, causing frustration and confusion.

Recommendations

- Implement mechanisms to manage user's wait in various phases. This can include providing progress indicators, status updates, or interactive elements that keep users engaged and informed during waiting times.

HUMAN READABLE HASHES FORMAT

- Are compact versions of the hashes shown but always showing the initial and end parts?
- Are users allowed to expand the full address/hash?
- Can users easily copy it?
- Is a custom human readable name or text associated with the addresses and hashes?



Issue (MEDIUM)

- Curve fails to provide users with the ability to expand the full address/hash. This limitation inhibits users from accessing and reviewing complete details.
- Furthermore, the platform does not associate a custom human-readable name or text with addresses and hashes. This omission prevents users from easily identifying and recalling specific addresses or hashes, making it difficult to establish meaningful associations and creating potential usability challenges.

Recommendations

- Expandable Address/Hash Display: Allow users to expand the full address/hash to view and copy the complete details. This feature will empower users to access the necessary information and ensure accuracy in their interactions.
- Custom Human-Readable Labels: Provide users with the ability to assign custom human-readable names or labels to addresses and hashes. This functionality will allow users to associate meaningful identifiers with specific entities, improving recognition and recall.

Pool Details

Chart Pool Activity

LP Token Price (DAI) ▾

Expand ↗

1d ▾



Currency reserves

DAI \$1.0000	103,626,994.719 (33.64%)
USDC \$0.9997	109,608,197.43841 (35.59%)
USDT \$0.9994	94,777,599.63546 (30.77%)
USD total	\$308,002,078.32

Daily USD volume: **\$8.14m**

Liquidity utilization: **2.64%**

Fee: **0.01%**

DAO fee: **0.005%**

Virtual price: **1.0263**

Pool Parameters

A: **2000**

Ramping up A: **5000 → 2000**

Ramp up A ends on:

6/2/2022, 4:20:27 AM

Contracts

Pool	0XBE...F1C7
Token	0X6C...E490
Gauge	0XBF...952A

Users can not expand the full address/hash.

PERMANENT NEWBIE MODE

- Is educational information woven into normal interaction?
- Are there 2 or more levels of educational content: Blockchain basics and Dapp specific lingo?
- Is the amount of new things and concepts that the user needs to learn minimized and increased progressively?



Issue (MEDIUM)

- Curve fails to effectively weave educational information into normal interactions.
- Furthermore, the platform does not provide two or more levels of educational content, covering both blockchain basics and Dapp-specific terminology. This absence of comprehensive educational resources limits users' ability to grasp essential concepts and terminology.
- Moreover, the platform does not minimize the amount of new things and concepts that users need to learn, nor does it progressively increase the complexity of educational content, making it challenging for users to grasp unfamiliar concepts.

Recommendations

- Integrated Educational Content: Integrate educational information seamlessly into normal interactions, providing users with relevant explanations, tooltips, or guided tutorials that enhance their understanding of the platform's features and processes.
- Multi-Level Educational Resources: Develop two or more levels of educational content, including blockchain basics and Dapp-specific lingo, to cater to users with varying levels of familiarity. These resources should cover essential concepts, terminologies, and best practices to empower users to make informed decisions..

GAS PRICE AND TRANSACTION REVERSAL

- Is what Gas and Gas price clarified?
- Are gas prices ranges suggested and time approximations for the upper and lower bounds clarified?
- Are transaction reversals allowed?



Issue (SERIOUS)

- Gas Price Ranges and Time Approximations: The platform does not suggest gas price ranges or provide time approximations for the upper and lower bounds. This absence of information makes it challenging for users to estimate transaction costs and plan their interactions accordingly. Clear suggestions and time approximations would help users make informed decisions based on factors like network congestion and gas fees.
- Transaction Reversals: The platform does not allow for transaction reversals. This limitation can be problematic if users make unintended or erroneous transactions.

Recommendations

- Gas Price Ranges and Time Estimates: Suggest gas price ranges and provide time approximations for the upper and lower bounds. This information will assist users in estimating transaction costs and better planning their interactions based on network conditions and gas fees.
- Transaction Reversal Mechanism: Introduce a mechanism for transaction reversals, allowing users to undo unintended or erroneous transactions. This feature will enhance user control, reduce anxiety, and provide a safety net for potential mistakes.

USABILITY SCORE



136 /236
MODERATE

Users should be able to use this site or system and complete most important tasks, however the user experience could be significantly improved.

USABILITY SCORE

Ultimately, the usability score is a quantitative or qualitative representation of how usable and effective a product is in meeting user needs and goals. It helps evaluate the success of UX design and identify areas for improvement to enhance the overall user experience.

NEXT STEPS



NEXT STEPS

Suggestions to improve the Curve experience

#1

Incorporate Newbies in Product Roadmap -

Switch from focusing on product development for just veteran users of Curve and involve newbie users in developing a user-centric product.

#2

Implement Findings -

follow up the Implementation of the Research Findings on live platform.

RESOURCES



RESOURCES

Raw Report Sources

- [Expert Review Based On web Usability Guidelines Spreadsheet report](#)
- [Expert review based on Web3 UX Principles by Beltran Spreadsheet report](#)
- [Expert review collation and usability score report on Airtable spreadsheet Report](#)



www.generalmagic.io

