The Dai Stablecoin System

Overview of the Dai Stablecoin System

Popular digital assets such as Bitcoin (BTC) and Ether (ETH) are too volatile to be used as everyday currency. The value of a bitcoin often experiences large fluctuations, rising or falling by as much as 25% in a single day and occasionally rising over 300% in a month [1].

The Dai Stablecoin is a collateral-backed cryptocurrency[2] whose value is stable relative to the US Dollar. We believe that stable digital assets like Dai are essential to realizing the full potential of blockchain technology. Unlike other Stablecoins, Dai is completely decentralized[3].

Users can obtain Dai by buying it from brokers or exchanges, and Dai holders can utilize a special mechanic known as the Dai Savings Rate to earn a steady, low-risk return on their holdings.

Maker is a smart contract platform on Ethereum that backs and stabilizes the value of Dai through a dynamic system of Collateralized Debt Positions (CDPs), autonomous feedback mechanisms, and appropriately incentivized external actors.

Maker enables anyone to leverage their Ethereum assets to generate Dai on the Maker Platform. Once generated, Dai can be used in the same manner as any other cryptocurrency: it can be freely sent to others, used as payments for goods and services, or held as long term savings. Importantly, the generation of Dai also creates the components needed for a robust decentralized lending platform.

Collateralized Debt Position Smart Contracts

Anyone who has collateral assets can leverage them to generate Dai on the Maker Platform through Maker's unique smart contracts known as Collateralized Debt Positions. A Collateral Asset is a digital asset that the decentralized Maker Governance process has input into the system. [4]

CDPs hold collateral assets deposited by a user and permit this user to generate Dai, but generating Dai also accrues debt. This debt effectively locks the deposited collateral assets inside the CDP until it is later covered by paying back an equivalent amount of Dai, at which point the owner can again withdraw their collateral. Active CDPs are always collateralized in excess, meaning that the value of the collateral is higher than the value of the debt.

The CDP interaction process

- **Step 1: Creating the CDP and depositing collateral**
  The CDP user first sends a transaction to Maker to create the CDP, and then sends another transaction to fund it with the amount and type of collateral that will be used to generate Dai. At this point the CDP is considered collateralized.
- **Step 2: Generating Dai from the collateralized CDP**
  The CDP user then sends a transaction to retrieve the amount of Dai they want from the CDP, and in return the CDP accrues an equivalent amount of debt, locking them out of access to the collateral until the outstanding debt is paid.
- **Step 3: Paying down the debt and Stability Fee**
  When the user wants to retrieve their collateral, they have to pay down the debt in the CDP, plus the Stability fee that continuously accrue on the debt over time. The Stability Fee can only be paid in MKR (or DAI if using the CDP Portal UI). Once the user sends the requisite Dai and MKR to the CDP, paying down the debt and Stability Fee, the CDP becomes debt free.
- **Step 4: Withdrawing collateral and closing the CDP**
  With the Debt and Stability Fee paid down, the CDP user can freely retrieve all or some of their collateral back to their wallet by sending a transaction to Maker.

Single-Collateral Dai vs Multi-Collateral Dai

Dai currently supports only one type of collateral, Pooled Ether. We plan to upgrade Single-Collateral Dai to Multi-Collateral Dai. The primary difference is that it will support any number of CDP types.

Pooled Ether (Temporary mechanism for Single-Collateral Dai)

At first, Pooled Ether (PETH) will be the only collateral type accepted on Maker. Users who wish to open a CDP and generate Dai during the first phase of the Maker Platform need to first obtain PETH. This is done instantly and easily on the blockchain by depositing ETH into a special smart contract that pools the ETH from all users, and gives them corresponding PETH in return.

If there is a sudden market crash in ETH, and a CDP ends up containing more debt than the value of its collateral, the Maker Platform automatically dilutes the PETH to recapitalize the system. This means that the proportional claim of each PETH token goes down relative to the total pooled ETH. After the Maker Platform is upgraded to support multiple collateral types, PETH will be removed and and instead regular ETH will be usable as collateral alongside other new collateral types.

Price Stability Mechanisms

Target Price

The Dai Target Price is used to determine the value of collateral assets Dai holders receive in the case of an Emergency Shutdown. The Target Price for Dai is 1 USD, translating to a 1:1 USD soft peg.

Emergency Shutdown

Emergency Shutdown is a process that can be used as a last resort to directly enforce the Target Price to holders of Dai and CDPs, and protect Maker against attacks to its infrastructure. Emergency Shutdown stops and gracefully settles the Maker Platform while ensuring that all users, both Dai holders and CDP users, receive the net value of assets they are entitled to. Effectively, it allows Dai holders to directly redeem Dai for $1 of collateral at the point in time when the Emergency Shutdown is initiated. In Single-Collateral Dai the process is controlled by Emergency Oracles chosen by MKR voters.

In Multi-Collateral Dai the process is fully decentralized and controlled by MKR voters who can trigger it by depositing MKR into the emergency shutdown contract. A minority, but significant, quorum of MKR voters is necessary to instantly trigger an Emergency Shutdown. Initially this quorum will be 50,000 MKR. For additional security, MKR voters will also still be able to select Emergency Oracles that have the power to unilaterally trigger an Emergency Shutdown.

Examples of serious emergencies are long term market irrationality, hacking or security breaches. The Emergency Shutdown mechanic will also be used to facilitate system upgrades.

Emergency Shutdown: Step by Step

- **Step 1: Emergency Shutdown is triggered and CDP users withdraw assets**
  If enough MKR voters or Emergency Oracles selected by Maker Governance believe that the system is subject to a serious attack, or if an Emergency Shutdown is scheduled as part of a technical upgrade, they can trigger the Emergency Shutdown function. This stops CDP creation and manipulation, and freezes the Price Feeds at a fixed value that is then used to process proportional claims for all users. CDP users are able to immediately withdraw the net value of collateral in their CDPs from the moment Emergency Shutdown is triggered.
- **Step 2: Post-Emergency Shutdown auction processing**
  After Emergency Shutdown has been triggered, a period of time is needed to allow pre-existing Collateral Auctions to finish. The auction processing period is set by Maker Governance to be slightly longer than the longest Collateral

Auction duration, which will guarantee that at the end of the auction processing period there are no more outstanding auctions.

- **Step 3: Dai holders claim the remaining collateral with their Dai**
  After the auction processing period is complete, Dai holders can use their Dai to claim collateral directly at a fixed rate that corresponds to the calculated value of their assets, based on the target price of Dai. E.g. If the Dai Target Price is 1 U.S. Dollar, the ETH/USD Price is 200 and a user holds 1000 Dai when Emergency Shutdown is activated, after the processing period they will be able to claim exactly 5 ETH from the Maker Platform. There is no time limit for when the final claim can be made. In Multi-Collateral Dai Dai holders will get a proportional claim to each of the collateral types that exist in the collateral portfolio.

Dai Savings Rate Adjustments

When, due to changing market dynamics, the market price of Dai deviates from the Target Price in the short run, Maker Governance can mitigate this price instability by modifying the Dai Savings Rate. The Dai Savings Rate is a global system parameter that both affects how much Dai holders can earn in return on their holdings over time, as well as the base borrowing cost for generating Dai from CDPs.

If the market price of Dai is below 1 USD, the Dai Savings Rate will increase. This boosts demand and stifles supply, by incentivizing more Dai holders, and fewer CDP users, which should increase the market price up towards the 1 USD target price.

If the market price of Dai is above 1 USD, the Dai Savings Rate will decrease. This stifles demand and boosts supply, which should reduce the market price of Dai down towards the 1 USD target price.

Together these two forces ensure that any time the price of Dai deviates away from the Target Price, the adjustments will help guide the market price back to the Target Price.

The Dai Savings Rate Adjustment Process will initially be a weekly process where the Maker Governance community evaluates public market data and proprietary data provided by market participants, and process the data to determine whether an adjustment to the Dai Savings Rate is necessary, or will be necessary soon.

During Single-Collateral Dai, the Dai Savings Rate will not be available, and instead the Stability Fees on CDPs will be adjusted directly to balance supply and demand and protecting the stability of Dai in the marketplace.

Risk Management of The Maker Platform

The MKR token allows holders to vote to perform the following Risk Management actions:

- **Add new CDP type**: Create a new CDP type [Collateral Asset] with a unique set of Risk Parameters. A CDP type can either be a new type of collateral, or a new set of Risk Parameters for an existing collateral type.
- **Modify existing CDP types:** Change the Risk Parameters of one or more existing CDP types that were already added
- **Modify Dai Savings Rate**: Change the Dai Savings Rate
- **Choose the set of Price Oracles**: The Maker Platform derives its internal prices for collateral and the market price of Dai from a decentralized oracle infrastructure, consisting of a wide set of individual oracle nodes. MKR voters control how many nodes are in the set of trusted oracles, and who those nodes are. Up to half of the oracles can be compromised or malfunction without causing a disruption to the continued safe operation of the system
- **Choose the set of Emergency Oracles**: Emergency Shutdown is a crucial mechanic that allows the Maker Platform to survive attacks against the oracles or the governance process, and mitigate the risk of a run on the bank. The governance process chooses a set of Emergency Oracles who each have the ability to unilaterally trigger an Emergency Shutdown.
- **Trigger Emergency Shutdown**: MKR voters are also able to instantly trigger Emergency Shutdown if enough MKR voters believe it is necessary. This is used a final defense net if the Emergency Oracles are compromised.

Risk Parameters

Collateralized Debt Positions have multiple Risk Parameters that enforce how they can be used. Each CDP type has its own unique set of Risk Parameters, and these parameters are determined based on the risk profile of the collateral used by the CDP type. These parameters are directly controlled by MKR holders through voting, with one MKR giving its holder one vote.

The key Risk Parameters for CDPs are:

- **Debt Ceiling**: The Debt Ceiling is the maximum amount of debt that can be created by a single type of CDP. Once enough debt has been created by a CDP of any given type, it becomes impossible to create more unless existing CDPs are closed. The debt ceiling is used to ensure sufficient diversification of the collateral portfolio.
- **Liquidation Ratio**: The Liquidation Ratio is the collateral-to-debt ratio at which a CDP becomes vulnerable to liquidation. A low Liquidation Ratio means MKR voters expect low price volatility of the collateral, while a high Liquidation Ratio means high volatility is expected.
- **Stability Fee**: The Stability Fee is a fee paid by every CDP. It is an annual percentage yield that is calculated on top of the existing debt of the CDP and has to be paid by the CDP user. The Stability Fee is denominated in Dai, but can only be paid using the MKR token. The amount of MKR that has to be paid is

calculated based on a Price Feed of the MKR market price. When paid, the MKR is burned, permanently removing it from the supply.

- **Liquidation Penalty**: The Liquidation Penalty is used to determine the maximum amount of Dai raised from a Collateral Auction that is used to buy up and remove MKR from the supply, with excess collateral getting returned to the CDP user who owned the CDP prior to its liquidation. The Liquidation Penalty is used to cover the inefficiency of the liquidation mechanism. During the phase of Single-Collateral Dai, the Liquidation Penalty goes to buy and burn of PETH, benefitting the PETH to ETH ratio.
- **Auction duration**: The duration that a collateral auction runs for after a liquidation has been triggered.
- **Auction step size**: The minimum increase a bid must be above the current bid when bidding in an auction. This risk parameter exists to incentivize early bidders in auctions, and prevent abuse by bidding a tiny amount above an existing bid.

MKR Token Governance

In addition to payment of the Stability Fee on active CDPs, the MKR token plays an important role in the governance of the Maker Platform.

Governance is done at the system level through election of an Active Proposal by MKR voters. The Active Proposal is the smart contract that has been empowered by MKR voting to gain administrative access to modify the internal governance variables of the Maker Platform.

Proposal Contracts are proposals that can only be executed once after gaining administrative access, and after execution immediately applies their changes to the internal governance variables of the Maker Platform. After the one-time execution, the Proposal Contract wipes its logic and cannot be re-used.

Any Ethereum account can deploy valid proposal smart contracts. MKR voters can then use their MKR tokens to cast approval votes for the proposal that they want to elect as the Active Proposal. The smart contract that has the highest total number of approval votes from MKR voters is elected as the Active Proposal. The modifications to the internal governance variables do not take effect immediately, but are delayed for 24 hours by the Governance Security Module. This ensures the system can protect itself by triggering an Emergency Shutdown in response to a malicious governance proposal that would harm the system.

In the long run more advanced forms of Proposal Contracts can also be used, including Proposal Contracts that aren’t single-use. The Maker Governance mechanism is designed to be as flexible and upgradeable as possible.

In practice the Maker Governance Process establishes a rough consensus in the governance community before any votes are cast, meaning that outcome of the voting should already be known, and the voting process itself is not when decision making happens, but rather is way to securely implement decisions that have already been made into the system.

MKR and Multi-Collateral Dai

After the upgrade to Multi-Collateral Dai, MKR will take on a more significant role in the Dai Stablecoin System by replacing PETH as the the recapitalization resource. When CDPs become undercollateralized due to market crashes, the MKR supply is automatically diluted and sold off in order to raise enough funds to recapitalize the system.

Automatic Liquidations of risky CDPs

To ensure there is always enough collateral in the system to cover the value of all outstanding Debt (according to the Target Price), a CDP can be liquidated if it is deemed to be too risky. The Maker Platform determines when to liquidate a CDP by comparing the Liquidation Ratio with the current collateral-to-debt ratio of the CDP.

Each CDP type has its own unique Liquidation Ratio that is controlled by MKR voters and established based on the risk profile of the particular collateral asset of that CDP type.

Liquidation occurs when a CDP hits its Liquidation Ratio. The Maker Platform will automatically buy the collateral of the CDP and subsequently sell it off. There is a temporary mechanism in place for Single-Collateral Dai called a Liquidity Providing Contract. For Multi-Collateral Dai an auction mechanism will be used.

Liquidity Providing Contract (Temporary mechanism for Single-Collateral Dai)

During Single-Collateral Dai, the mechanism for liquidation is a Liquidity Providing Contract: a smart contract that trades directly with Ethereum users and keepers according to the price feed of the system.

When a CDP is liquidated, it is immediately acquired by the system. The CDP owner receives the value of the leftover collateral minus the debt, Stability Fee and Liquidation Penalty.

The PETH collateral is set for sale in the Liquidity Providing Contract, and keepers can atomically purchase the PETH by paying Dai. All Dai paid this way are immediately

removed from the Dai supply, until an amount equal to the CDP debt has been removed. If any Dai is paid in excess of the debt shortfall, the excess Dai is used to purchase PETH from the market and burn it, which positively changes the ETH to PETH ratio. This results in a net value gain for PETH holders.

If the PETH selloff initially does not raise enough Dai to cover the entire debt shortfall, more PETH is continuously created and sold off. New PETH created this way negatively changes the ETH to PETH ratio, causing PETH holders to lose value.

Debt and Collateral Auctions (Multi-Collateral Dai)

In Multi-Collateral Dai, during a liquidation, the Maker platform buys the collateral of a CDP and subsequently sells it in an automatic auction. This auction mechanism enables the system to settle CDPs even when price information is unavailable.

In order to take over the collateral of the CDP so that it can be sold, the system first needs to raise enough Dai to cover the CDP's debt. This is called a Debt Auction, and works by diluting the supply of the MKR token and selling it to bidders in an auction format.

In parallel, the collateral of the CDP is sold in a Collateral Auction where all proceeds (also denominated in Dai) up to the CDP debt amount plus a Liquidation Penalty (A Risk Parameter determined by MKR voting) is used to buy MKR and remove it from the supply.

This directly counteracts the MKR dilution that happened during the Debt Auction. If enough Dai is bid to fully cover the CDP debt plus the Liquidation Penalty, the Collateral Auction switches to a reverse auction mechanism and tries to sell as little collateral as possible--any leftover collateral is returned to the original owner of the CDP.

Key External Actors

In addition to its smart contract infrastructure, the Maker Platform relies on certain external actors to maintain operations. Keepers are external actors who take advantage of the economic incentives presented by the Maker platform. Oracles and Global Settlers are external actors with special permissions in the system assigned to them by MKR voters.

Keepers

A keeper is an independent (usually automated) actor that is incentivized by profit opportunities to contribute to decentralized systems. In the context of the Dai

Stablecoin System, keepers participate in the Debt Auctions and Collateral Auctions when CDPs are liquidated.

Keepers also trade Dai around the Target Price. Keepers sell Dai when the market price is higher than the Target Price and buy Dai when the market price is below the Target Price to profit from the expected long-term convergence towards the Target Price.

Price Oracles

The Maker Platform requires real-time information about the market price of the assets used as collateral in CDPs in order to know when to trigger liquidations. MKR voters choose a set of trusted oracles to feed this information to the Maker Platform through Ethereum transactions.

To protect the system from an attacker who gains control of a majority of the Oracles, all Oracle inputs go through the Oracle Security Module, which imposes a 1 hour delay on the data, leaving enough time for the MKR governance community and the Emergency Oracles to analyze the data and react

Emergency Oracles

Emergency Oracles are external actors similar to Price Oracles and together with MKR voters are the last line of defense for the Maker Platform in the event of an attack. The Emergency Oracles, selected by MKR voters, have the authority to unilaterally trigger an Emergency Shutdown. Aside from this authority, these actors do not have any additional special access or control within the system.

Examples

The Dai Stablecoin System can be used by anyone without any restrictions or sign-up process.

- **Example 1**: Bob needs a loan, so he decides to generate 100 Dai. He locks an amount of ETH worth significantly more than 100 Dai into a CDP and uses it to generate 100 Dai. The 100 Dai is instantly sent directly to his Ethereum account. Assuming that the Stability Fee is 1% per year, Bob will need 101 Dai to cover the CDP if he decides to retrieve his ETH one year later.

One of the primary use cases of CDPs is margin trading by CDP users.

- **Example 2**: Bob wishes to go margin long on the ETH/DAI pair, so he generates 100 USD worth of Dai by posting 150 USD worth of ETH to a CDP. He then buys another 100 USD worth of ETH with his newly generated Dai, giving him a net 1.66x ETH/USD exposure. He’s free to do whatever he wants with the 100 USD

worth of ETH he obtained by selling the Dai. The original ETH collateral (150 USD worth) remains locked in the CDP until the debt plus the Stability Fee is covered.

Liquidations ensure that in the event of a price crash of the collateral backing a CDP type, the system will automatically be able to close CDPs that become too risky. This ensures that the outstanding Dai supply remains fully collateralized.

- **Example 3**: Let's assume that there is an Ether CDP type with a Liquidation Ratio of 145%, a Penalty Ratio of 105%, and we have an Ether CDP with a collateral-to-debt ratio of 150% . The Ether price now crashes 10% against the Target Price, causing the collateral-to-debt ratio of the CDP to fall to ~135%. As it falls below the Liquidation Ratio, traders can trigger its Liquidation and begin bidding with Dai for buying MKR in the debt auction. Simultaneously, traders can begin bidding with Dai for buying the ~135 Dai worth of collateral in the collateral auction. Once there is at least 105 Dai being bid on the Ether collateral, traders reverse bid to take the least amount of collateral for 105 Dai. Any remaining collateral is returned to the CDP owner.

Addressable Market

As mentioned in the introduction, a cryptocurrency with price stability is a basic requirement for the majority of decentralized applications. As such, the potential market for Dai is at least as large as that of the entire blockchain industry. The following is a short, non-exhaustive list of some of the immediate markets (in both the blockchain and the wider industry) for the Dai Stablecoin System in its capacity as a cryptocurrency with price stability and its use case as a decentralized margin trading platform:

- **Financial Markets; Hedging, Derivatives, Leverage**: CDPs will allow for permissionless leveraged trading. Dai will also be useful as stable and reliable collateral in custom derivative smart contracts, such as options or CFD's.
- **Merchant receipts, Cross-border transactions and remittances**: Foreign exchange volatility mitigation and a lack of intermediaries means the transaction costs of international trade can be significantly reduced by using Dai.
- **Transparent accounting systems**: Charities, NGO's and Governments will all see increases in efficiency and lower levels of corruption by utilizing Dai.
- **Prediction Markets & Gambling Applications**: When making an unrelated prediction, it is obvious not to want to increase one's risk by placing the bet using a volatile cryptocurrency. Long-term bets become especially infeasible if the user has to also gamble on the future price of the volatile asset used to place the bet. Instead, a cryptocurrency with price stability like Dai will be the natural choice for prediction market and gambling users.

Risks and their Mitigation

There are many potential risks facing the successful development, deployment, and operation of the Maker Platform. It is vital that the Maker community takes all necessary steps to mitigate these risks. The following list spells out some of the risks identified and the accompanying plan for risk mitigation:

Malicious hacking attack against the smart contract infrastructure

The greatest risk to the system during its early stages is a malicious programmer finding an exploit in the deployed smart contracts, and using it to break or steal from the system before the vulnerability can be fixed. In a worst case scenario, all decentralized digital assets that are held as collateral in the Maker Platform, such as Ether (ETH) or Augur Reputation (REP), could be stolen without any chance of recovery. The part of the collateral portfolio that is not decentralized, such as Digix Gold IOU's, would not be stolen in such an event as they can be frozen and controlled through a centralized backdoor, and combined with a timely Emergency Shutdown of the platform this would allow Dai and CDP users to retrieve the remaining value they are entitled to.

Mitigation: Smart contract security and best security practices have been the absolute highest priority of Dai development effort since its inception. The codebase has already undergone three independent security audits by some of the best security researchers in the blockchain industry.

Beyond just good engineering and best practices, the strongest tool to defend against hacks is formal verification. Formal verification means creating mathematical specifications of the intended behaviour of the system, alongside mathematical proofs that the codebase implements behaviour that is identical to the intended behaviour, with no unintended side effects.

The Dai codebase is the first ever codebase of a decentralized application that has been formally verified. A short term goal is to also create a completeness proof, which is a mathematical proof that shows it is impossible to create any other behaviour than exactly the behaviour of the mathematical specification of the system.

Black swan event in one or more collateral assets

Another high impact risk is a potential Black Swan event on collateral used for the Dai. This could either happen in the early stages of Dai Stablecoin System, before MKR is robust enough to support inflationary dilutions, or after the Dai Stablecoin System supports a diverse portfolio of collateral.

Mitigation: CDP collateral will be limited to ETH in the early stages, with the debt ceiling initially limited and growing gradually over time.

Competition and the importance of ease-of-use

As mentioned previously, there is a large amount of money and brainpower working on cryptocurrency with price stability. By virtue of having "true decentralization", the Dai Stablecoin System is by far the most complex model being contemplated in the blockchain industry. A perceived risk is a movement among cryptocurrency users where the ideals of decentralization are exchanged for the simplicity and marketing of centralized digital assets. **Mitigation:** We expect that Dai will be very easy to use for a regular cryptocurrency user. Dai will be a standard Ethereum token adhering to the ERC-20 standard and will be readily available with high liquidity across the ecosystem. Dai has been designed in such a way that the average user need not understand the underlying mechanics of the system in order to use it.

The complexities of the Dai Stablecoin System will need to be understood primarily by Keepers and capital investment companies that use the Dai Stablecoin System for margin trading. These types of users have enough resources to onboard themselves as long as there is abundant and clear documentation of every aspect of the system's mechanics. The Maker community will ensure that this is the case.

Pricing errors, irrationality and unforeseen events

A number of unforeseen events could potentially occur, such as a problem with the price feed from the Oracles, or irrational market dynamics that cause variation in the value of Dai for an extended period of time. If confidence is lost in the system, rate adjustments or even MKR dilution could reach extreme levels while still not bringing enough liquidity and stability to the market.

Mitigation: The Maker community will need to incentivize a sufficiently large capital pool to act as Keepers of the market in order to maximize rationality and market efficiency and allow the Dai supply to grow at a steady pace without major market shocks.

Failure of centralized infrastructure during early stages

The Maker Foundation plays a major role in the development and governance of the Maker Platform in its early days: budgeting for expenses, hiring new developers, seeking partnerships and institutional users, and interfacing with regulators and other key external stakeholders. Should the Maker Foundation fail in some capacity — for legal reasons, or due to internal problems with management — the future of Maker could be at risk without a proper backup plan.

Mitigation: The Maker community is bootstrapped early to act as the decentralized counterparty to the Maker Foundation even during the early phases of the project. It is a loose collective of independent actors who are all aligned by holding the MKR token,

giving them a strong incentive to see the Maker Platform succeed. During the early phases of MKR distribution, great care was taken to ensure that the most important core developers received a significant MKR stake. In the event that the Maker Foundation is no longer effectively able to lead the development of the Maker Platform, individual MKR holders will be incentivized to fund developers (or simply carry out development themselves) in an effort to protect their investment, and Maker Governance is also able to fund maintenance and development of the system.

Conclusion

The Dai Stablecoin System was designed to solve the crucial problem of stable exchange of value in the Ethereum ecosystem and the wider blockchain economy. We believe that the mechanism through which Dai is created, transacted, and retired, along with the direct Risk Management role of MKR holders, will allow for self-interested Keepers to maintain the price stability of Dai over time in an efficient manner. The founders of the Maker community have established a prudent governance roadmap that is appropriate for the needs of agile development in the short term, but also coherent with the ideals of decentralization over time. The development roadmap is aggressive and focused on widespread adoption of Dai in a responsible fashion.

Glossary of Terms

- **Collateralized Debt Position (CDP)**: A smart contract whose users receive an asset (Dai), which effectively operates as a debt instrument with an interest rate. The CDP user has posted collateral in excess of the value of the loan in order to guarantee their debt position.
- **Dai**: The cryptocurrency with price stability that is the asset of exchange in the Dai Stablecoin System. It is a standard Ethereum token adhering to the ERC20 standard.
- **Debt Auction**: The reverse auction selling MKR for Dai to cover Emergency Debt when a CDP becomes undercollateralized.
- **Collateral Auction**: The auction selling collateral from a CDP undergoing liquidation. It is designed to prioritize covering the debt owed by the CDP, and secondarily to give the CDP owner the best possible price for their excess collateral refund.
- **The Maker Foundation**: A decentralized team of smart contract developers committed to the development and successful launch of the Maker Platform.
- **Keepers**: Independent economic actors that trade Dai, CDPs and/or MKR; create Dai or close CDPs; and seek arbitrage on The Dai Stablecoin System. As a result, Keepers help maintain Dai market rationality and price stability.
- **MKR**: The ERC20 token used by MKR voters for voting. It also serves as a backstop in the case of insolvent CDPs.

- **MKR Voters**: MKR holders who actively manage the risk of the Dai Stablecoin System by voting on Risk Parameters.
- **Maker**: The name of the Decentralized Autonomous Organization that is made up of the Maker Platform technical infrastructure, and the community of MKR voters.
- **Oracles**: Ethereum accounts (either contracts or users) selected to provide price feeds into various components of Maker Platform.
- **Risk Parameters**: The variables that determine (among other things) when the Maker Platform automatically judges a CDP to be Risky, allowing Keepers to liquidate it.
- **Sensitivity Parameter**: The variable that determines how aggressively the Dai Stablecoin System automatically changes the Target Rate in response to Dai market price deviations.

Links

- **Chat**: https://chat.makerdao.com/ — Primary platform of community interaction
- **Subreddit**: https://reddit.com/r/makerdao/ — Best place to get latest news and links
- **GitHub**: https://github.com/makerdao/ — Repository of the public Maker code
- **SoundCloud**: https://soundcloud.com/makerdao/ — Governance meeting recordings
- **Maker Tools**: https://mkr.tools/ — Real time overview of the live system