

[Transcript] FYI - For Your Innovation / Big Ideas Monday Mini: Smart Contract Networks

Welcome to the Big Ideas Monday mini-series, brought to you by the For Your Innovation podcast.

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This annual research report seeks to highlight the technological breakthroughs evolving today and creating the potential for super-exponential growth tomorrow.

We believe that innovation is taking off now, corroborating our original research and boosting our confidence that our strategies are on the right side of change.

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Fundamentally, we think smart contract networks have the potential to revolutionize the way we think about and deliver financial services and the internet at large, and we think this could amount to a multi-trillion dollar opportunity by 2030.

In this video, I'm going to walk you through some of the reasons why and what that market outlook looks like.

To start, we can look at the history of smart contract networks, which enable the deployment of arbitrarily complex contracts onto a blockchain so that business logic can be operated transparently

and autonomously, often without the need for traditional centralized intermediaries to facilitate things like financial services transactions, be they transfers of assets, exchanges, lending, etc.

And we're also seeing this technology be used to provide digital ownership onto the internet for the first time with the NFT technology.

Looking at how these blockchains are being used over time can give us some insight into how they're really gaining traction and how the use cases for them are actually diversifying.

So if we take Ethereum, for example, which was launched in 2015, for the first year and a half, two years of its launch, transactions on Ethereum were primarily vanilla transfers of the native asset ether from one address to another.

As we go through time, we see a pickup in 2017 and 18 of ERC20 transactions, which are novel assets that are created onto the network.

And this was the ICO boom, which eventually turned into a bust, if you remember, in 2018.

It actually took some time until 2020 before we saw really what I would call the first real true use cases for smart contract networks, really finding product market fit, which was the rise of decentralized finance, which we featured in our Big Ideas section last year.

Then going into 2021 and 2022, we saw the rise of NFTs also gain share of usage on public blockchains.

And then stablecoins have been growing steadily throughout as another way to settle value on chain that is dollar denominated rather than denominated in a volatile crypto asset. And as the markets sold off at the end of 2022, we saw them increase transaction volume considerably.

To talk more about a few of these use cases, I think reflecting on some of the turmoil in the crypto markets in 2022, primarily the deleveraging risk off motion and really financial crime that took place throughout that year.

We see decentralized finance as a bright spot that whose value proposition really increased throughout the year.

One example of that is the ability to transact exchange assets in an open and transparent manner while maintaining self-custody.

This takes place on what's called decentralized exchanges.

And we've seen since they really came out in 2020, an increase in transaction volume that's happening on decentralized exchanges as compared to their centralized counterparts. And in November, when we saw the FTX exchange really blow up because they were misappropriating

customer funds and not holding them one to one, the decentralized trading volume actually shot up as a share of total trading volume from 9% to 14%.

And we think this is indicative of traders and users preferring the open and transparent rules-based operations of smart contract-powered financial services as opposed to traditional centralized financial services.

We can also see promising signs in on-chain lending.

Similar to how smart contracts can enable the open and transparent trading of assets through decentralized exchanges, they can also facilitate the lending of assets through decentralized lending markets.

One example is AVE V2, which processed since its launch in 2020 over \$100 billion of total cumulative inflows and outflows from its smart contracts.

This has all happened autonomously via smart contracts where the risk controls are publicly available, everybody can see the collateralization ratios in the network.

And that level of transparency and rules-based enforcement of the risk management measures is actually what has allowed these lending markets to survive the deleveraging events that we saw.

It's a stark contrast to centralized operators like Celsius who were making sweetheart deals offering under-collateralized loans, the risks of which were not known to the market.

And as the market sold off, they found themselves in bad positions that eventually resulted in their bankruptcy and failure, and that happened across the centralized lending space.

As I mentioned a little bit earlier, a lot of this activity has been centered around the Ethereum blockchain, and this network in particular underwent several technological upgrades over the past two years that are important to highlight, the largest of which is the network's transition from proof-of-work consensus to proof-of-state consensus.

What this means is rather than miners who are running power-intensive GPUs to secure the network.

The network is now run and maintained by validators who run a much more lightweight server client and instead post-Ether as stake to provide security.

What this means in effect is that the network is more efficient in terms of where it gets its security from.

In doing this, the developers have reduced the amount of Ether that's emitted into the network per day to pay for security.

And what that looks like is a drop in new Ether issued per day from about 14,000 Ether to under 2,000.

And this is a really significant change in the monetary policy of the Ethereum network, we think.

Overall, this drops the annual issuance of new Ether from about 4% per year to really close to flat.

And depending on transaction fees on the network, the supply of Ether can now be deflationary.

Which is a really significant advance in how the economics of the Ethereum network run.

Another development we saw in 2022 was the rise of scaling technologies.

As DeFi and NFTs took off over the last two years, the main Layer 1 Ethereum network was really pushed to its limits.

And what that caused was transaction fees to skyrocket very high because there's a limited number of transactions that can be supported on that base layer.

The solution here is to create Layer 2 scaling technologies that provide higher throughput and lower fees to the network.

And just recently, we've seen two of these Layer 2 networks go live and really start to gain scale.

Arbitrum and Optimism are the networks I'm talking about.

And they've now come to surpass the average daily transaction volume that happens on the base layer with the capacity to go much farther.

Notably, we've also seen at the end of February in 2023, Coinbase as a centralized exchange launched their own open source Layer 2 roll up for Ethereum.

They're looking to encourage the next generation, the next billion users of decentralized networks on chain.

And they're going to be contributing to this open source network as part of that.

It's important to note that despite these advancements in technology, there are also concerns around smart contract networks as they scale, namely around the risk of increasing centralization and transaction censorship.

On the centralization side, as Ethereum transitioned from proof of work to proof of stake, we've seen an increasing concentration of the number of entities that have influence over the network and control over the network security based on the number of ETH that they've staked.

The top three staking services now account for roughly two thirds of total ETH.

On the transaction censorship side, we've seen an increasing share of blocks that are proposed or created by centralized services that are tending to censor transactions.

One of those is FlashBots that now produces or has influence on about 60% of blocks on the Ethereum network.

Now well, as long as a minority share of validators are not censoring transactions, this doesn't mean that censorship is rampant on the base layer, but it is a growing concern that we're watching closely.

And this concern is not just limited to the Ethereum network.

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As we look over time, one measure of decentralization, of which there are many, can be the percent of supply that's allocated to insiders when a new network launches.

And really Bitcoin stands out here as a network that was launched with no insider supply, really the true fair launch, as it's called.

Ethereum had about a little under 20% of the supply allocated to insiders, but over time we've seen this rise considerably where new networks now seem to have the entire initial supply of the network's token allocated to insiders.

And what this means is it's much harder for these networks to claim that they're truly decentralized, at least at launch.

And I think every new network should have the goal of progressively decentralizing.

There have been two main forces behind this increasing rise of insider allocations.

The first is the regulatory consideration.

Ethereum launched at a time where it was possible to do a global initial coin offering and offer a large percentage of the supply to the community who was willing to buy in and support the network.

Different regulatory regimes, especially in the United States, have frowned upon this approach and actually gone after new networks that launch and the development team behind them if they do this.

And then second, the new networks have to compete with incumbents.

When Bitcoin or Ethereum launched, there were no incumbents to displace in the blockchain space.

Now, if a new network launches in 2023, it needs a war chest of capital of inside venture capital money to help it compete and win projects over from the existing layer one networks like Ethereum.

Taking a step back and thinking what the total opportunity could be of smart contract networks, we think that because of the benefits of smart contract networks, the ability to have ownership on the internet, the ability to autonomously manage and transparently manage assets really without intermediaries for the first time over the internet is going to encourage a migration of existing financial assets in the world to move on chain and for novel financial assets to be created natively on chain.

If you relate this to the founding of the internet and you think we're in the early 90s, if this scales like the internet did, we could see about 5% of the world's financial assets existing natively on chain by 2030 and we think because of the attributes of smart contract networks, they'll be able to deliver these financial services around these assets for a much lower take rate than the traditional financial world that's filled with these intermediaries and toll takers, even if they only charge a third of what traditional financial services take and it's 5% of total assets by 2030.

We think this could represent a \$450 billion market of annual fees that are generated by smart contracts and the underlying networks that power them.

That would represent a 59% cagger from the estimated \$11 billion in total fees generated by smart contracts in 2022 and we think this could support a multi-trillion dollar market value for tokens and assets related to these smart contract protocols.

And with that, thank you for viewing the smart contract network section of Big Ideas 2023.

If you'd like to dig into the entire report, you can find it on our website arc-invest.com.

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