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Key takeways

- Ethereum remains the most significant smart contract blockchain. It grew the daily user base of its dapp ecosystem 118% in 2019, with daily value up 166%.

- Ethereum is also the only blockchain to-date to successfully grow dapps across the four main categories: DeFi, Exchanges, Games, and Gambling and High-Risk.

- The performance of dapps on the EOS blockchain was heavily impacted by congestion arising from the EIDOS token’s network spamming. This resulted in daily user activity declining by 48%.

- The TRON dapp ecosystem rose strongly in the first half of 2019 but then declined. Overall its user base rose 93% but it remains heavily concentrated in the Gambling and High-Risk categories.

- None other emerging smart contract blockchain demonstrated a sustained audience of dapp usage in 2019.
Dapp ecosystem overview: 2019
There are many ways to measure the success of the blockchain sector and the individual blockchains of which it consists.

At DappRadar, our view is the best long term measure of success is the vibrancy of each blockchain’s dapp ecosystem.

Given the nascence of the industry, we don’t yet expect the dapp ecosystem to be the primary cause of such success, but - even in 2019 - we do expect to see the first green shoots that will eventually become great oaks.

And it’s in this context we present our first annual overview.

ONE TO RULE THEM

In terms of structure, the focus of this report sits squarely on the Ethereum dapp ecosystem.

As well as being the first smart contract blockchain, Ethereum remains the most significant in terms of the number of active dapps deployed, the depth of its development community, and growth in terms of users and value during 2019.

In terms of headline figures in 2019, daily active unique wallets across the Ethereum dapp ecosystem rose 118%, with daily value in terms of US dollars up 166%.

Ethereum also remains the only blockchain to-date that’s successfully nurtured dapps across the four main categories: DeFi, Exchanges, Games, and Gambling and High-Risk.

This isn’t to say Ethereum is the perfect blockchain for dapps. As demonstrated by a sharp rise in gas prices during September, dapps running on this Proof of Work blockchain remain vulnerable to systematic factors.

Yet, more generally, 2019 was a very successful year for the Ethereum dapp ecosystem, as highlighted by the many headlines covering the explosive growth of its DeFi sector.

Indeed, thanks to DappRadar’s new token tracking analysis, we estimate the daily value of its dapp ecosystem, in terms of accumulated daily token throughput, is now well over $10 billion.
TWO RIVALS

Things weren't so rosy for EOS and TRON, however.

Despite being labeled as 'Ethereum Killers' by many, both struggled to grow their user base, and the value captured by their dapps.

More significantly, their oft-mentioned technical advantages in terms of block time and transaction throughput, arising from their Delegated Proof of Stake consensus method, proved problematic.

At a high level, 2019 did not deliver on all expectations for Ethereum, but still made some very good progress

Aside from the mysterious cancellation of founder Justin Sun's much-anticipated charity dinner with Warren Buffett, TRON generated fewer headlines in 2019.

And yet while it experienced strong growth in terms of total daily active unique wallets from January to December, all key TRON dapps experienced decline in the second half of the year.

Another interesting trend was that while many TRON dapps - ranging from games to exchanges and gambling dapps - launched well, most failed to sustain their audiences. The result is, much as at the start of the year, TRON ends 2019 as a blockchain predominantly used for gambling.

Of course, there are also many other smart contract blockchains, all in various stages of development and deployment, and all with ambitious plans for their future success.

Currently, DappRadar tracks dapps across 11 blockchains - with more to be added in 2020 - when we expect to see which of these emerging technologies will breakout.

We briefly cover some of these contenders in this report too.
Ethereum

DAPP RADAR 2019 DAPP INDUSTRY REVIEW
ETHEREUM: FROM THE TOP

Taking a high-level view, you’d be forgiven for thinking 2019 was a year in which Ethereum promised much but fulfilled little.

From a protocol and pricing point of view, the early excitement surrounding the successful deployment of the Constantinople hard fork and the ETH price regaining $200 - further encouraged by a brief mid-year spike of +$300 - proved short-lived.

The Istanbul hard fork was successfully completed in December without impacting price, leaving Ethereum bulls pinning their hopes on the future impact of the Serenity upgrades that will deliver Ethereum 2.0, starting as early as Q1 2020 but maybe not completely until 2022.

Yet for those not obsessed with ETH price, even at the protocol level, there were some encouraging signs. Daily trading volumes rose throughout 2019, up over 200% despite November’s sliding price.

Other positives included the almost total transition of the Tether stablecoin from its original Omni incarnation (running on the Bitcoin blockchain) to Ethereum's ERC20 variant; which is faster and cheaper.

This was a factor in the so-called Ethereum Flippening, in which the number of transactions on the Ethereum blockchain involving its ETH cryptocurrency was surpassed by the number of transactions from Ethereum-based ERC20 tokens.

If nothing else, it’s symbolic of Ethereum’s growing utility as a platform for dapps.

Ironically, this demonstration also had the knock-on effect of increasing the number of daily transactions and making the network less able to deal with demand spikes.

This was most clearly seen during September with the launch of the high-risk gambling dapp FairWin, which spammed the network for a couple of weeks - until its smart contract was drained in mysterious circumstances - more than doubled the gas price for Ethereum transactions.
This didn’t reduce activity across all dapp categories but did highlight long-discussed issues concerning the logic of running applications on a general blockchain on which a small number of high-value financial transactions compete for limited resources with many low-value transactions.

Certainly, the jump in gas price during September didn’t appear to impact DeFi and exchange dapps but overall activity in the gaming and gambling categories dropped substantially.
ETHEREUM DAPPS: USERS

More generally, such issues proved to be minor hiccups compared to the overall highly positive picture when considering activity across the entire Ethereum dapp ecosystem, however.

As a headline figure, the number of unique active wallets interacting across all Ethereum dapps on a daily basis rose 118% to over 19,000 by mid-December.

This growth was most notable during the first half of 2019. The rise in ETH price, in particular, drove exchange dapp activity, with the total daily activity peaking at almost 20,000 in May. Rising gas prices in September dropped daily activity to under 9,000 but it recovered, hitting a year-high of over 22,500 in early December.

This latter growth was mainly driven by a rise in gaming, which despite being hit hard by September's gas prices, experienced a strong upward trend throughout the year; overall up by 123%.

The main title in this context was Double Jump.Tokyo’s My Crypto Heroes, which thanks to the launch of its monthly VIP Prime subscription (priced at 0.1 ETH per month) grew its user base from a couple of hundred players in January to well over 3,500 by December.

It was by-far-and-away the most popular Ethereum dapp during 2019, being the only dapp in any category to sustain an audience of more than 1,000 daily active wallets.
Looking at the key dapp categories on Ethereum during 2019, the breakdown was as follows:

- *Games and Marketplaces* accounted for 50% overall daily activity, with growth of 195%
- *Gambling and High-Risk dapps* accounted for 22% of activity, rising 78%
- *Exchanges* accounted for 20% of activity, rising 26%
- *DeFi* accounted for 6%, rising 529%

**ETHEREUM DAPS: VALUE**

As already alluded to, while user activity is an important metric, it's not the only one.

Measuring the volume of tokens interacting with the smart contracts running on Ethereum highlights Ethereum's growing significance as a network for storing and creating digital money and financial value.

And this is where things get really interesting. DappRadar has always tracked the volume of the ETH cryptocurrency but as the dapp ecosystem matured during 2019, it became clear that ERC20 tokens, not ETH, accounted for the majority of value being generated on Ethereum.

Hence, mid-year DappRadar started tracking the entire flow of all fungible token value through Ethereum smart contracts.

Now, for the first time, we present this data, which highlights just how undervalued our understanding of the Ethereum dapp ecosystem had previously been.

The total value in terms of ETH tokens for all Ethereum dapps during 2019 was $1.8 billion, up 202% in terms of USD value.

However, for the period of time during which DappRadar was tracking ERC20 tokens (from 1 June 2019 onwards), the total value of such activity was $7.2 billion, up 166%
during that period.

Combined this gives a half-yearly total of $6.9 billion for the entire Ethereum ecosystem; ETH and ERC20 tokens.

On that basis, the total value created by the Ethereum dapp ecosystem during 2019 was well over $10 billion.

Breaking down this half-yearly value total by category provides the following:

- **Exchanges** accounted for 50% of total value, down 40%
- **DeFi** accounted for 45% of total value, up almost 1,990%
- **Gambling and High-Risk** was 3% of total value, down 71%
- **Games and Marketplaces** was less than 1% of total value, up 87%

Once again DeFi was the standout category, experiencing astonishing growth; the category grew from around $2.5 million of daily value to almost $50 million.
ETHEREUM: DEFI

Ethereum’s DeFi category has already generated many headlines and is clearly one of the key trends of 2019. But it is also important to dig into the details of this category and pin down actually what did (and did not) occur.

The first thing to consider is the user base.

DeFi started 2019 as a tiny element of the Ethereum dapp ecosystem in terms of unique daily active wallets; MakerDAO averaged just over one hundred daily active wallets and Compound around 50.

Indeed, across the whole of 2019, only on two days did a DeFi dapp hit more than 1,000 daily users. Those days were 18 and 19 November, when MakerDAO upgraded to its new multi-collateral contract.

More generally, even during the second half of 2019, MakerDAO averaged around 250 daily uniques, Compound around 400 and dYdX around 175.

Clearly, these are not yet products with a mass audience, even in blockchain terms.

It’s also worth noting that because they are interlinked products - the so-called DeFi stack - the individual totals for these three dapps can not be combined to provide a robust estimate of the total DeFi audience. As measured by DappRadar, each “unique individual wallet” is only unique on per dapp basis.

A large proportion of MakerDAO users will interact with Compound and/or dYdX; that’s just how these products work. Such a correlation is clear to see as daily activity spikes are often simultaneously experienced by all three dapps.

For example, in its most simple form, users collateralize ETH into DAI using MakerDAO and then lend the DAI out on Compound - often through interfaces like InstaDapp and Zerion - and/or margin trade it on dYdX.

Despite these caveats, though, it is clear in relative and absolute terms, a lot more people were using such dapps at the end of 2019 than at the beginning.
Similarly, following its April 2019 launch, dYdX generated steady growth to around 150 daily uniques by August, drifting back down to around 100 daily uniques by December.

So, despite the growing resources being pumped into such products, DeFi dapps remain the preserve of a relatively small number of highly educated, high worth crypto investors.

In terms of the daily value passing through such dapps, up until November, 2019 would not have been particularly remarkable. As the main engine for all DeFi activity, MakerDAO’s regular spikes were the drivers of wider activity, but it wasn’t until the launch of multi-collateral DAI that this became spectacular.
Of course, given MakerDAO’s design as a way of creating the DAI stablecoin through the collateralization of ETH - something reversed via the repayment of the original DAI loan and interest owed using the MKR token - the value flows recorded could be in either direction.

No doubt, the launch of multi-collateral DAI triggered many users to close down their existing loans and generate new ones.

Similarly when looking at other DeFi dapps such as Compound and dYdX, 2019’s position as the explosive year of DeFi becomes more nuanced. Both dapps experienced declines in daily user and value totals following the launch of multi-collateral DAI.
In this context, it will be fascinating to see how the DeFi category evolves in 2020, both in terms of MakerDAO’s overall influence and whether a new generation of products can expand the user base from the currently hundreds into the thousands.

**ETHEREUM: GAMES AND MARKETPLACES**

As well as being the largest category on Ethereum in terms of dapps tracked, games and marketplaces are also the most popular.

This is partly due to the early success of titles such as CryptoKitties, combined with game developers’ inherent interest in attempting to make the most of any new technology.

Indeed, the Ethereum game ecosystem remains extremely vibrant, with dozens of new titles launching during 2019, and games such as Axie Infinity and Blockchain Cuties reaching their first anniversaries as live products, with small yet passionate and growing communities.

It’s also been interesting to see that 2019 has witnessed Ethereum reinforce its primary position for blockchain gaming as the challenge of seemingly more capable blockchains such as EOS and TRON has fallen away.

Of course, when we talk about gaming on Ethereum, in the vast majority of cases, we’re not talking about entire games running on the blockchain. Instead, developers use Ethereum for the ownership and trading of non-fungible tokens such as in-game items and characters.

For that reason, in this report, we’ve created a combined category with games and marketplaces. Most of the activity on marketplaces such as OpenSea revolves around the trading of game items; notably CryptoKitties, My Crypto Heroes and Gods Unchained.

Yet this user activity isn’t reflected in monetization. Very few games operate their own ERC20 tokens, and most of the value tracked is players buying (or trading) non-fungible tokens.
The most pertinent example of this is trading card game Gods Unchained. Despite all the press coverage it gained for selling out its Genesis card packs over a 12 month period, the $6 million raised in the process is a great success, but looks not substantial compared to the value created by other dapp categories.

**ETHEREUM: EXCHANGES**

Compared to DeFi dapps, decentralized exchanges (or DEXes) are relatively simple. People use them to exchange one sort of token for another.

Therefore, the popularity of most exchanges is highly correlated to the price of tokens, hence it shouldn't be a surprise that the activity on the most popular exchanges peaked in early July as the ETH price spiked above $300.

Similarly, as the ETH price weakened during the remainder of 2019, so did daily activity on key traditional exchanges such as IDEX.

This wasn't the full picture for the category though as new and radically different products such as Kyber (a dapp and a protocol) and Uniswap (another dapp/protocol, which provides users with the opportunity to provide liquidity) grew their audiences.

Kyber ended 2019 as the most popular 'exchange', peaking at over 600 daily unique wallets.

Such trends can be particularly clearly seen when displaying each exchange's audience as a trailing 30-day average.

![Exchanges - daily uniques wallets - T30](image_url)

This trend is even more apparent when considering the daily value each exchange attracted, with IDEX being overtaken by Kyber and Uniswap.

It's worth noting Kyber and Uniswap could be considered part of the emerging category of exchanges that 'play well' with DeFi dapps. It could even be argued Uniswap's liquidity feature means it should be classified as a DeFi dapp.
Yet the biggest issue when it comes to considering the performance of Ethereum exchange dapps in 2019 is the role of Oasis Trade.

For the first half of the year, it was called Eth2dai - it only enabled the trading of ETH and DAI - and was part of MakerDAO’s own DeFi stack.

Renamed Oasis Trade, it was relaunched as the dapp used to create multi-collateral DAI on 18 November, effectively replacing the original MakerDAO dapp. Because it retained its trading feature, it still sits in the exchange category.

If nothing else, this again highlights the blurring of the lines between these two categories; something that will only become more apparent in 2020.

Nevertheless, for the sake of consistency, it’s worth highlighting that during 2019 Oasis Trade accounted for the vast majority of the value of the exchange category, despite its sub-100 daily active unique wallets.

For the vast majority of 2019, it also outperformed the original MakerDAO dapp in terms of daily value too.

Note: once again a clear correlation between activity across these two dapps can be seen by looking at some of their highest daily peaks.

For such reasons, it’s perhaps best to consider the performance of Ethereum’s exchange category during 2019 as being the average of the decline of traditional decentralized exchanges combined with the rise of DeFi-aligned exchange dapps and protocols.
ETHEREUM: GAMBLING AND HIGH-RISK

Although Ethereum was the first blockchain that gambling dapps and (their associated more complex brothers) high-risk dapps could use, it’s now clear Ethereum is not a natural platform for such activities.

Partly this is due to slow block times and partly due to Ethereum’s model of charging a gas fee for each transition.

If Ethereum remained the only available smart contract blockchain, developers of gambling dapps would make it work better, but given the likes of EOS and TRON are much easier environments for such dapps, the category has fallen away somewhat during 2019.

The other issue that makes this category difficult to characterize is that, unlike other categories, it’s not very coherent. Especially in the case of high risk, dapps quickly rise, attracting attention and then burn out, with high-risk dapp Hex currently providing the perfect example. This makes it difficult to highlight consistent trends.

Finally, as has often been cited, gambling dapps typically generate a lot of bot traffic. While DappRadar actively filters out such activity, it’s impossible to remove it all as much more than other categories, the design of gambling dapps actively encourages such behavior.

This is why the daily unique wallet activity across such dapps looks so peculiar. In particular, note Playtowin’s suspiciously regular total of 1,000 dailies; something which collapsed to an average of less than 50 during the September gas price spike.

More generally, the cyclical rise and fall of such dapps is apparent, as new products are launched, gain traction and then replaced by more attractive competitors. Retention is clearly a massive issue for the sector.

Gambling & high-risk - daily unique active wallets

[Graph showing daily unique active wallets for Playtowin, CryptoHands, YQLorekt, and Hex, with a focus on Playtowin's unusual daily activity.]
And this was the reason that while the gas price spike was devastating in terms of daily activity when we consider value, the sector was already experiencing a strong decline.

From a daily take of over $2 million in early July, it had fallen to less than $500,000 by early August. It didn’t regain that level until October, then experiencing a smaller $1 million a day peak in mid-November, before falling away again.

**ETHEREUM DAPPS: CONCLUSIONS**

At a high level, 2019 did not deliver on all expectations for Ethereum, but still made some very good progress.

Yet even at that level, the successful deployment of two hard forks and symbolic events such as the Flippening demonstrated its growing maturing as a functional technology.

This conclusion is reinforced by the further development of Ethereum as the ecosystem for dapps during 2019.

Despite the competition, it remains the most popular place to deploy dapps (excluding gambling and high risk), and although they had their own dynamic, each dapp category on Ethereum experienced strong growth in either daily activity, daily value, or both.

The headline success was in the DeFi category, which although remaining small in terms of users, experienced spectacular growth in terms of the value of asset secured.

This trend was partially reflected in the Exchange category, with exchange dapps that worked well with DeFi dapps generating strong growth. More traditional decentralized exchanges failed to capitalize on this development, however.

Finally, the Games and Marketplace category demonstrated strong growth in terms of daily activity, although existing products have much work to do in terms of capturing significant amounts of value.
It also should be noted such dapps currently work on a transactional basis with users buying unique non-fungible items compared to the activity of DeFi and exchange dapps, which is based on trading or exchanging highly liquid fungible tokens and is much higher for that reason.

Such differences between categories can clearly be displayed when their daily user and value totals are plotted and compared.

- DeFi has the smallest user base with the highest value
- Exchanges are more widely used with less daily value, while
- Games/Marketplaces and Gambling/High-Risk generate insignificant value despite their much higher daily activity
EOS: FROM THE TOP

As with most blockchains, 2019 started off in a positive vein for EOS.

The price of its cryptocurrency rose steadily, reaching a peak of $8.59 in early June.

Similarly, daily activity for EOS dapps rose during this period, peaking at 54,000 daily active unique wallets across all dapps in early June.

From then on, however, it was downhill all the way.

EOS’ cryptocurrency price dropped back steadily, ending the year at its starting point just above $2.

And while activity on the EOS dapp ecosystem sustained around 40,000 daily wallets for most of the year, the launch of the EidOS token - at best a mischievous experiment gone wrong, at worst an aggressive DDOS attack - meant that by December it was below 15,000.
EOS DAPPS: USERS

The underlying vulnerability leveraged by EIDOS’ spamming had long been debated, albeit as more of an abstract discussion about EOS’ governance model and lack of decentralization, not least in terms of the technical ability of its 21 block producers.

Nevertheless, when the EIDOS token launched in early November, the congestion it triggered by sucking up the majority of the blockchain’s resources quickly proved catastrophic for the wider EOS dapp ecosystem.

The majority of users with only modest amounts of EOS staked through their wallet couldn’t get their transactions confirmed and hence stopped using EOS dapps.

The result was a brutal crash, with overall activity falling from 44,000 to 13,000 daily active unique wallets in a matter of days. And activity has remained around that level ever since.

Yet, even in the days before that crash, something odd was happening.

On 2 and 3 October, the EOS daily dapp user total dropped to around 20,000 and then almost immediately rebounded back up.

Similarly, the crash caused by EIDOS was actually a two-stage process. On 23 October, daily activity on EOS dropped from 44,000 daily active unique wallets, going as low as 20,000, rebounding to 30,000 by 30 October, only to be crushed back down to 13,000 from 1 November, which is when EIDOS launched.

The reason for this stage fall is unclear. Yet, drilling down to see exactly which dapp categories the EIDOS token impacted, throws up another set of questions.
Unlike Ethereum and TRON, which have a well-defined set of dapp categories, the biggest category for EOS is the catch-all term ‘Other’.

EOS does, of course, also have fairly well-populated categories such as Games, Exchange, and Gambling and High-Risk, but around half the daily activity on EOS dapps is through Other products such as ADM, ENBank and PRA CandyBox.

These are dapps which airdrop tokens to try and get users for new dapps, and hence attract a lot of bots.

**EOS DAPPS: BOTS**

By their design, all blockchains are vulnerable to the operations of bots but the level of such traffic is dependent on a blockchain’s specific design.

For example, Ethereum’s gas fee doesn’t eliminate bot traffic but it does reduce it as it ensures people will only pay these fees if they can generate sufficient revenue from using bots to cover the upfront outlay.

For Delegated Proof of Stake blockchains such as EOS and TRON, the lack of gas fees means that once wallets are created, it’s extremely cheap to operate large scale bots networks. Much work has been done by DappRadar and other companies to discover and filter out such traffic, but it’s impossible to entirely remove it.

And this provides some context for the behavior of users across the different EOS dapp categories.

The initial crash of EOS dapp activity starting 23 October hit Games and Exchange dapps somewhat - down 17 and 15% respectively - but the Gambling and High-Risk category dropped 50%, with Other down 78%.

In the following days, Exchanges and Games recovered back to their original levels, but the Gambling and High-Risk, and Other categories did not.
Indeed, looking at dapp activity across these categories for the whole of Q4 2019, a very clear picture becomes apparent.

The Games category actually only declined by 16%, Exchanges were down 42% but Gambling and High-Risk lost 61% of its traffic and Other was down an incredible 92%.

This makes sense given that the impact of EIDOS effectively worked like the addition of a gas fee to transactions on the EOS blockchain. If users (or developers) want to get their transactions into a block, they had to increase the resources they were willing to spend (or in this case stake) in order to do so.

Clearly, users (or developers) would only be prepared to buy additional EOS if these experiences were valuable to them, either financially or emotionally.

In this context, gaming held up well, exchange activity was reduced, gambling activity substantially reduced and other airdrop activity destroyed; not least because anyone with access to bots was now spending all their time and resources on EIDOS.

In this way, the congestion caused by the EIDOS token acted as a filter for bot traffic on the EOS dapp ecosystem.

It is, therefore, tempting to reconsider the scope of the EOS dapp ecosystem with the pre-EIDOS activity the combination of real and bot traffic and post-EIDOS activity being EOS’ true activity.

This would reduce EOS’ peak activity in 2019 from 54,000 to 26,000 wallets but it wouldn’t impact the end of year total significantly and also has the advantage of providing a much cleaner canvas for discussion of EOS’ ongoing potential as a vibrant dapp ecosystem.

In fact, in relative terms, compared to our quoted 48% decline in daily activity across all EOS dapps during 2019, this post-EIDOS filtering model would generate a modest rise of 8% in terms of daily activity.
EOS DAPPS: USERS

When it comes to the key dapps running on EOS, the big surprise is that despite the size of the Gambling and High-Risk category in terms of overall activity, there aren’t any individual gambling dapps with large daily audiences.

Instead, taken as a whole (and excluding the ADM, ENBank and PRA CandyBox dapps), the most popular EOS dapps were the games EOS Dynasty, EOS Knights and Prospectors and the Newdex exchange.
Looking at activity across the whole of 2019, the most obvious trend is the rise and long decline of EOS Knights.

Peaking at 6,900 daily active unique wallets in March, the game then experienced a steady fall in audience, before the EIDOS congestion effectively killed it off. It ended 2019 with around 300 daily users.

The reasons for this are unclear but likely include a combination of fewer in-game rewards, a lack of long term gameplay, and active filtering of bots by the game’s developer.

It’s also worth pointing out that during this time, an updated version of the game - called Knight Story - launched in Ethereum, and will also be released on TRON and other blockchains in 2020.

In that context, the story of EOS Knights could perhaps be seen as part of the wider disengagement of the EOS dapp community, which has certainly been accelerated by the EIDOS congestion.

However, it’s not all bad news. Both EOS Dynasty and Prospectors launched during 2019 and have built up sustained audiences of more than 3,000 daily active unique wallets, although Prospectors has recently launched a version of its game on the WAX blockchain, which uses the EOS.IO SDK.

Similarly, the Newdex exchange has maintained more than 1,000 daily active unique wallets since its June launch.

**EOS DAPPS: VALUE**

As with Ethereum, during 2019, DappRadar realized the importance of tracking the flow of the EOS cryptocurrency and other EOS-based tokens to provide a fuller picture of trends.

This tracking started from 1 June and initially highlighted very significant token value - over $200 million a day on occasion - through EOS exchanges, notably Newdex.

However, this proved to be a temporary effect and by the end of 2019, the total daily value of tokens in the EOS dapp ecosystem was measured in the low millions of dollars, with the vast majority of this generated by EOS, not secondary tokens.

Indeed, across the year, the daily value of the EOS dapp ecosystem in terms of daily inputs dropped 92%, which is another worrying signal over its health going into 2020.
**EOS DAPPS: CONCLUSIONS**

In every respect, 2019 proved to be a very difficult year for the EOS dapp ecosystem. It shed a significant number of users and a significant amount of value, and with the network congestion from the EIDOS token ongoing, there doesn’t appear to be a quick fix available.

Given the launch of EOS-based competitors such as the WAX blockchain, which has attracted a number of EOS dapps to transition, it looks like conditions in 2020 could only become more difficult.

In particular, breaking down the dapp categories into their daily user: value components (each data point is a single day), it’s obvious that while EOS has users, it’s only exchange dapps that generate significant value.

Similarly, despite some successful products, overall, the Games category isn’t as popular as it is on Ethereum. And, while the Gambling and High-Risk category is popular, it doesn’t generate the same value as on TRON.

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### Daily user/value data points for each EOS dapp category

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<th>Category</th>
<th>Comparison</th>
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<td>EOS Other - DAUs vs USD</td>
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Tron
DAPPRADAR 2019 DAPP INDUSTRY REVIEW
TRON: FROM THE TOP

Both at a protocol, public relations, and dapp level, 2019 proved to be a year of two halves for TRON.

The price of its TRX cryptocurrency peaked in both early and late June as the news its high profile CEO Justin Sun had bid $4.6 million to win a charity lunch with legendary investor Warren Buffett.

Prior to this, in April, the total number of daaily active unique wallets interacting with TRON dapps peaked at over 30,000.

Things looked good.

But by the time that lunch date had been cancelled in mysterious circumstances, activity on the TRON dapp ecosystem had dropped to just over 10,000 daily wallets, although it rebounded to end the year at an average of 18,500; up 82% since the start of January.

There's been no rebound for the price of TRX. It's down 26%.

More significant has been the decline in the value of TRX passing through the mainly gambling and high-risk dapps that run on TRON.

Again, the year's peak was an impressive $100 million on 16 March, but by December, the daily total was well under $10 million. Over the year, the daily total was down 75%.
TRON DAPPS: USERS

Yet, perhaps the biggest issue for the vision of TRON as a maturing dapp ecosystem has been its failure to expand outside of its key category of gambling and high-risk dapps.

90% of TRON audience interact with gambling dapps, 10% with exchanges, and 0.1% with games.

This is demonstrated as, with the exception of the TronWatch Market exchange, the top five dapps by daily activity on TRON in 2019 are all in the gambling and high-risk category.

Even in that context, TRON’s most popular dapp - TRONBET, which was relaunched as WINk in 2019, saw peak activity in late June of 4,000 daily active unique wallets, dropping to less than 2,000 by mid-December.
This isn’t to say developers haven’t attempted to launch other types of dapps on TRON. A decent number of games have been released but, as with dapps in other categories, it appears to be easy to launch well on TRON, but very hard to sustain an audience.

Examples include games like Epic Dragons and TRONLegend, the TronTrade exchange and gambling dapps P3T World and Bankroll, all of which peaked at around 2,000 daily active unique wallets before quickly falling away.

Of these dapps, only TronTrade has managed to retain a substantial audience of around 1,000 daily wallets.

TRON DAPPS: VALUE

Given the dominance of gambling and high-risk dapps on TRON in terms of users, what is perhaps surprising is the dominance in terms of where the daily value is spent isn’t any more extreme.

Value is split 90% gambling and high-risk, 10% exchanges, with games a rounding error.

However, looking within categories, only one dapp is responsible for the majority of TRON’s daily value.

WINk accounts for about 72% of the year’s total, and its pre-dominance rises to 85% of the TRON dapp ecosystem’s total value for the second half of 2019.

Across the entire year, the top 5 dapps (WINk, 888TRON, TronWoW, Poloni DEX and TronTrade) account for 95% of the dapp value on TRON.
TRON DAPPS: CONCLUSIONS

In that respect, TRON ends the year looking rather like a one-trick pony; indeed, a one-trick pony that’s running out of momentum.

This can be also be highlighted comparing the daily user: value graphs from each TRON dapp category.

Games are effectively irrelevant, exchanges are small and low value, while gambling and high-risk dapps are the obvious key category, both in terms of users and value.
Other contenders
OTHER CONTENDERS
At the start of 2019, DappRadar tracked the performance of dapps across the three smart contract blockchains; Ethereum, EOS, and TRON.

But by the end of 2019, this number had increased to 11, with more blockchains to be added in 2020.

The reason for the expansion is clear. The blockchain sector is expanding fast, with developers looking to improve on current technology. In many cases, the driving factor is the promise of new forms of decentralization and governance, often designed to meet the needs of specific industry use cases.

Of course, not all of these blockchains will be successful but at DappRadar we believe those that eventually find success will do so because they provide an environment in which their dapp ecosystem can flourish, both in terms of dapp developers and dapp users.

So, in that spirit, we’re providing a short overview of the eight blockchains DappRadar started tracking in 2019, also highlighting their key dapps.

Note: We’re listing them in the chronological order in which DappRadar started tracking them.

IOST
Based on an ultra-fast, highly decentralized Proof of Believability consensus, the IOST mainnet went live during February 2019.

To-date, 39 dapps are being tracked mainly in the Games and Gambling and High-Risk categories.

However, the most popular dapps on IOST is currently the IOST Dex exchange. The dapp with the highest daily token value is gambling dapp iPirates.

Across 2019, IOST peaked in mid-June with over 7,000 daily active unique wallets, although the yearly average was 1,800.

![IOST daily unique active wallets - 2019](image-url)
ONTOSLOGY

More than just a blockchain for dapps, Ontology has positioned itself as a technology that includes a series of complete distributed ledgers, smart contract systems, and a distributed trust ID platform. It also has a strong future roadmap focused on a multichain and cross-chain solutions.

To-date, 48 dapps are being tracked, with the most popular and the most valuable categories both being Games.

The top dapps on Ontology are HyperDragons Go and HyperSnakes, both of which games have around 500 daily active unique users.

Across 2019 activity on Ontology experienced a massive peak in May with over 70,000 daily active unique wallets, but during the second half of the year, the daily average was just over 2,000 dailies.
LOOM NETWORK

One of the first Layer 2 solutions to reach a substantial scale, Loom Network’s Basechain already allows developers to deploy dapps across the Ethereum, TRON and the Binance blockchains, with support for EOS and Cosmos also planned.

To-date, 17 dapps are being tracked with the majority of these being in the Games category.

The most popular dapp is Loom’s own coding tutorial CryptoZombies, while Axie Infinity, which is using Basechain to secure its land NFTs, has captured the most value.

Unlike some of the other blockchains covered in this section, Loom’s daily activity throughout 2019 has been fairly constant, averaging around 500 daily active unique wallets. Partly this is because many of its dapps, such as Relentless, CryptoWars, and Sorare, are in pre-launch testing.
THUNDERCORE

ThunderCore is a public, EVM-compatible blockchain designed to achieve the scalability and speed of a centralized infrastructure and the security of a decentralized system.

It does this using a dual chain approach; what it describes a “standard” slow blockchain — ThunderCore originally used Ethereum — combined with a “fast-path” protocol that’s coordinated by a centralized authority called the Accelerator.

To-date, 10 dapps are being tracked, with the majority of these in the Gambling category. The most popular dapp is gambling dapp TTRoll.

Activity on ThunderCore peaked in May at over 20,000 daily active unique wallets, but the average across the second half of 2019 was less than 500.
VECHAIN

VeChain is an enterprise-friendly public blockchain platform featuring a comprehensive governance structure, robust economic model, and IoT integration.

To-date, 16 dapps are being tracked, with the majority of these in the Other category, including esports gaming platforms Plair and PlayDECENT.

Activity across VeChain dapps was relatively stable during 2019 but at a low level. The average was just 40 daily active unique wallets.
Described as the “open network for the smart economy”, the NEO blockchain uses a
delegated Byzantine Fault Tolerant consensus model to provide high throughput and
single block finality.

To-date, 13 dapps are being tracked, with the majority of these in the Games category.
The most popular dapps during 2019 were the NEOLand game and the Switcheo
Network exchange.

Activity on NEO peaked in September at over 2,000 daily active unique wallets, but the
average across 2019 was around 250.
WAVES

Waves is an open-source platform and decentralized environment for Web 3.0 applications but has only recently supported the deployment of dapps.

To-date, 21 dapps are being tracked, with the majority in the Gambling category. The most popular dapps were Dice Roller and Ride on Waves.

Dapp activity on Waves didn’t start until July and peaked at over 500 daily active unique wallets during October. Waves ended 2019 averaging around 200 daily users.
WAX

The final blockchain to be added to DappRadar was the EOS.IO-based WAX. It's focused on gaming and marketplaces.

WAX only launched in late December so, at present, there is very little data.

To-date, 26 dapps are being tracked, although most of these are utility dapps which are characterized within the Other category.

The most popular dapps on WAX are the game Prospectors and social network KARMA, both of which have been ported over from their original incarnations on EOS.

Dapp activity on WAX peaked at over 5,000 daily active unique wallets with the launch of Prospectors.