

DATE

20 DEC 2018

COIN CATEGORY

CONSUMPTION TOKENS

MENTIONED COINS

GOLEM TICKER **GNT**SONM TICKER **SNM**EOS TICKER **EOS**

PURPOSE

VALUATION INSIGHT

RESEARCH ANALYST

Dan Kong CAIA

Tony Kim

research@coinone.co.kr

What do current crypto prices imply?

Fundamental approach on recent price correction and bubble debates

Crypto prices have corrected following the Nov BCH hardfork and as the US SEC zeros in on ICOs. With market participants clearly divided on future price direction, we believe investor confusion is magnified due to absence of fundamental and quantitative analytic approaches. In response, we utilize the previously introduced Coinone Consumption Token Valuation Algorithm (refer to note "Coinone Consumption Token Valuation Algorithm", published on 22 Oct 2018) to assess what current token prices imply in terms of potential addressable market and attempt to gauge its viability. In conclusion, we believe the current market may be reflecting the potential of these cryptocurrency projects conservatively.

What addressable market current tokens prices imply

This round of analysis is done on: 1) grid computing projects GNT(Golem) & SNM(Sonm) which may compete against high-performance computing, and 2) EOS which has similarities to cloud infra services. First, we apply the "No staking" approach on GNT and SNM. Based on GNT price of USD0.067 on 19 Dec 2018 and SNM of USD0.021, the implied addressable market of these two projects are USD1.4bn and USD82mn, respectively. Second, we utilize the "Staking, but no commission" methodology on EOS. Based on EOS price of USD2.64, the implied market size is only USD431mn. While there are limitations to this approach such as disregarding time value of money and speculative demand, these addressable market numbers to a fair extent suggests how much value must be transferred in the specific network for actual service usage justify current token prices.

Calculated implied addressable market size figures seem reasonable

The implied addressable market size of GNT & SNM based on today's token prices suggest a mere 2.5% market share of the 2025 high-performance computing market. Using the same approach, current EOS price implied market size only translates to 0.5% of 2020 IaaS and PaaS cloud service market. We also try comparing the implied market size to existing companies. For example, EOS' implied market of USD431mn is 2% of Amazon AWS 1Q18-3Q18 accumulated revenue of USD17.4bn. That said, current markets may be reflecting conservative estimates despite the vision and investment size of these projects, in our view.

Project execution will be key going forward

We believe token prices of the projects inspected in this note are not overvalued. Yet, speed of project execution and taking share in respective target markets is now key. We do express concern that execution has been sluggish for these projects considering their age of roughly 2 years and initial capital raise size. The projects are still at early stages of development and usability is limited for the everyday customer and corporates. Thus, the fate of these investments will largely depend on timely product launches and business development efforts well structured to take ground from already established companies and industries.

MARKET PRICE & CCDEX

GNT

USD	\$0.07
KRW	₩76
JPY	¥8

SONM

USD	\$0.02
KRW	₩24
JPY	¥2

EOS

USD	\$2.64
KRW	₩2,984
JPY	¥298
CCDEX	997.93

*As of 19 Dec 2018

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Thoughts about token value

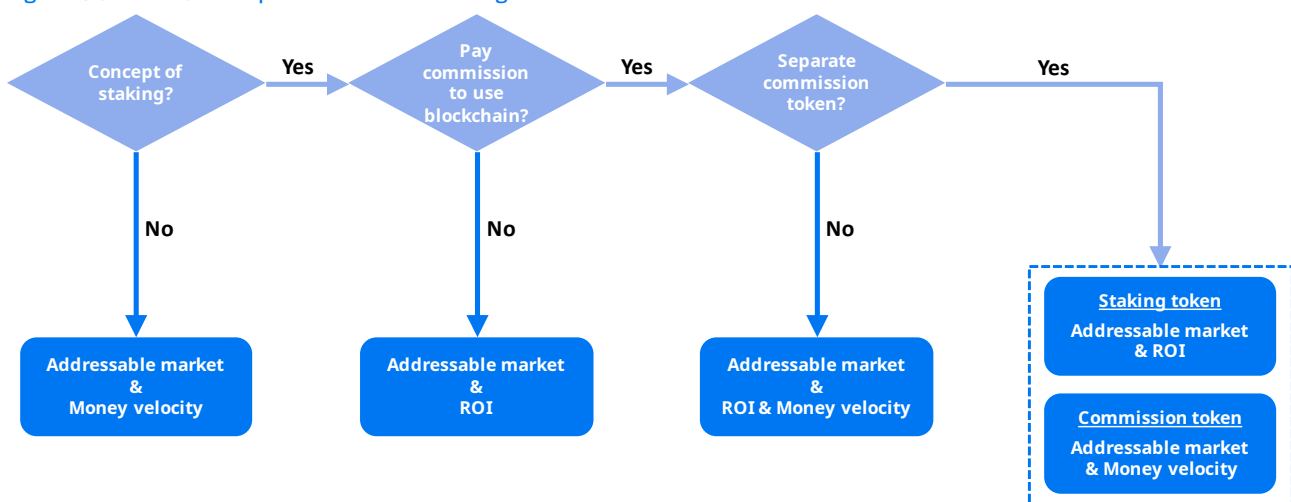
Bitcoin price remains suppressed at USD3,000 levels following the recent correction and several blockchain projects are facing financial difficulties. Main blockchain players such as ConsenSys and Steemit have announced 13% and 70% reduction in its employee base, respectively, while Ethereum Classic development company ETCDev has shutdown operations. Many investors are seemingly expressing confusion under current market circumstances, which we believe is further magnified due to limited fundamental and quantitative analysis compared to traditional markets such as equities.

Thus, today we attempt to assess the feasibility of current token prices for a select few projects utilizing our previously introduced Coinone Consumption Token Valuation Algorithm.

Consumption Token Valuation Algorithm

We previously introduced a simple valuation approach on tokens through our note “Consumption Tokens - Coinone Consumption Token Valuation Algorithm”, published on 22 Oct 2018. This methodology This tool suggests the best combination of variables (addressable market, required ROI and money velocity) based on three questions: 1) is there a concept of staking? 2) is a commission paid to use the blockchain/service?, and 3) is there a separate staking and commission token? In today’s note we attempt to apply this framework on grid computing projects GNT(Golem) and SNM(Sonm) which compete against high-performance computing, and EOS which is comparable to cloud services.

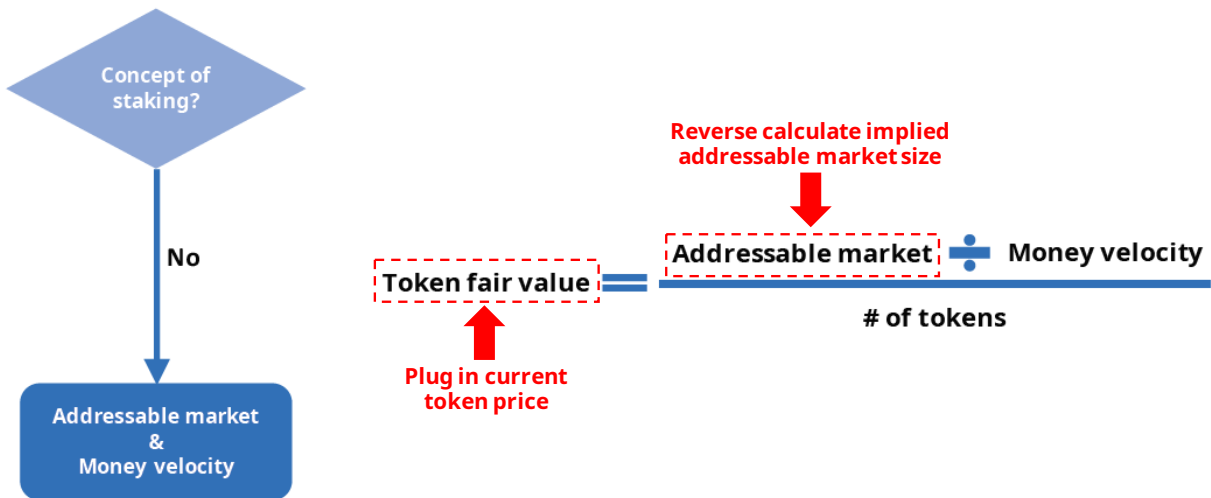
Figure 1. Coinone Consumption Token Valuation Algorithm



Source: Coinone Research

It is possible to apply the first “No staking” formula (“Token fair value = (Addressable market / Money Velocity) / # of tokens”) on GNT and SNM. We can substitute token fair value with current token market price and reverse calculate for implied addressable market, which we use to assess whether if current prices are rational.

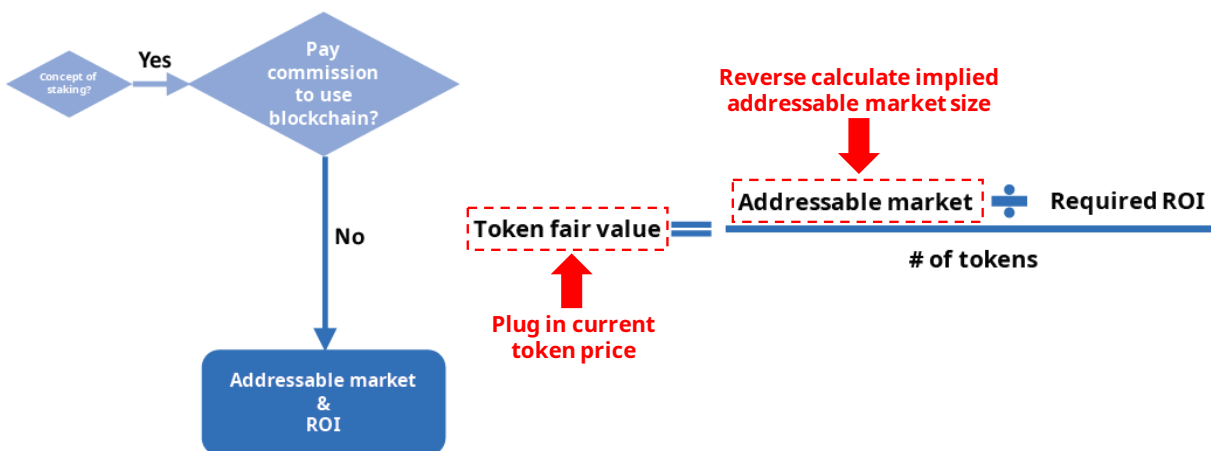
Figure 2. No staking - algorithm approach & valuation formula (GNT & SNM)



Source: Coinone Research

We can utilize the “Staking, but no commission” calculation (“Token fair value = (Addressable market / Required ROI) / # of tokens) for EOS. Same as the previous example, we substitute token fair value with current token market price and reverse calculate for addressable market.

Figure 3. Staking, but no commission - algorithm approach & valuation formula (EOS)



Source: Coinone Research

Grid computing projects: GNT & SNM

Grid computing is a concept of aggregating computing power of numerous individual machines to simulate a high-performance computer. It collects idle computing capacity of the connected computers to handle large scale operations such as machine learning and video rendering which would originally have required super computers. Golem and Sonm are well known examples of such projects, and the tokens GNT and SNM are used for payment when renting computing power.

GNT & SNT current prices imply an addressable market of USD1.4bn & USD82mn

Golem and Sonm are projects without staking functionality. Thus, we approach these projects through the “No staking” valuation formula. To start, we first collect three variables: 1) token price, 2) number of tokens in circulation, and 3) token velocity.

We use token price and number of tokens from CoinMarketCap. We derive token velocity by multiplying 365 to daily turnover ratio. Based on last-twelve-months data, turnover ratio of GNT was 6% which means annual velocity of 22.4 and SNM 3% which results in annual velocity of 10.8.

Figure 4. Variables for current price implied addressable market size reverse calc

Golem		Sonm	
# of Tokens in Circulation	959,842,000	# of Tokens in Circulation	359,600,000
Token Price (USD)	0.067	Token Price (USD)	0.021
Daily Turnover (LTM)	6%	Daily Turnover (LTM)	3%
Velocity	22.4x	Velocity	10.8x

Source: CoinMarketCap, Coinone Research (as of 19 Dec 2018)

Based on this approach, current token prices suggest an implied addressable market of USD1.4bn and USD82mn. This means that such amount of value must be transferred through the respective project networks for service usage to justify current token prices.

Figure 5. Golem - Implied addressable market size based on current token price

Golem Addressable Market Size (USDmn) = Token Price x Number of Tokens in Circulation x Velocity

Velocity/Price (USD)	0.040	0.050	0.060	0.067	0.070	0.080	0.090
10x	384	480	576	643	672	768	864
15x	576	720	864	965	1,008	1,152	1,296
20x	768	960	1,152	1,286	1,344	1,536	1,728
22.4x	861	1,076	1,291	1,442	1,506	1,721	1,937
30x	1,152	1,440	1,728	1,929	2,016	2,304	2,592
35x	1,344	1,680	2,016	2,251	2,352	2,688	3,024
40x	1,536	1,920	2,304	2,572	2,688	3,071	3,455

Source: Coinone Research

Figure 6. Sonm - Implied addressable market size based on current token price

Sonm Addressable Market Size (USDmn) = Token Price x Number of Tokens in Circulation x Velocity

Velocity/Price (USD)	0.010	0.015	0.020	0.021	0.025	0.030	0.035
4x	14	22	29	30	36	43	50
6x	22	32	43	45	54	65	76
8x	29	43	58	60	72	86	101
10.8x	39	58	78	82	97	117	136
12x	43	65	86	91	108	129	151
14x	50	76	101	106	126	151	176
16x	58	86	115	121	144	173	201

Source: Coinone Research

Taking an extra step, then what did peak prices during early 2018 imply? GNT and SNM peak prices were USD1.25 and USD0.78 on 8 Jan and 7 Jan. The same methodology suggests an implied addressable market figure of USD30bn and USD11bn, which is 21 and 139 time larger than current levels.

Figure 7. GNT & SNM - Implied addressable market size based on peak price

Golem (2018-01-08)		SONM (2018-01-07)	
# of Tokens in Circulation	959,842,000	# of Tokens in Circulation	359,600,000
Token Price (USD) (High)	1.25	Token Price (USD) (High)	0.78
Transaction Value (USDmn) (24h)	62	Transaction Value (USDmn) (24h)	27
Market Cap (USDmn)	908	Market Cap (USDmn)	244
Daily Turnover (LTM)	7%	Daily Turnover (LTM)	11%
Velocity	24.9x	Velocity	40.7x
Addressable Market Size (USDmn)	29,849	Addressable Market Size (USDmn)	11,376

Source: Coinone Research

Implying a 2.5% high-performance computing market share by 2025

We then come up with what type of market share figures the calculated addressable market size number suggests. According to GrandView Research, the high-performance computing market is expected to grow to USD60bn by 2025 from USD35bn in 2025. That said, Golem and Sonm should take 2.5% of 2025 high-performance computing market share to justify current token prices.

2.5% is a conservative figure compared to typical market share targets set by start ups at early stages. But on the other hand, market share implied by peak prices during early 2018 would have meant a whopping 50% and 19% of total market.

We also conducted a comparison against 2017 revenue of existing companies in the high-performance/grid computing industry. The implied market size of USD82mn for Sonm is equivalent to 33% of super-computer manufacturer Cray's 2017 product revenue. Golem's USD1.4bn sits between USD860mn 2017 Big Data & Cyber Security revenue of Atos SE, a French IT services company, and AMD's USD2.3bn Enterprise, Embedded and Semi-Custom revenue.

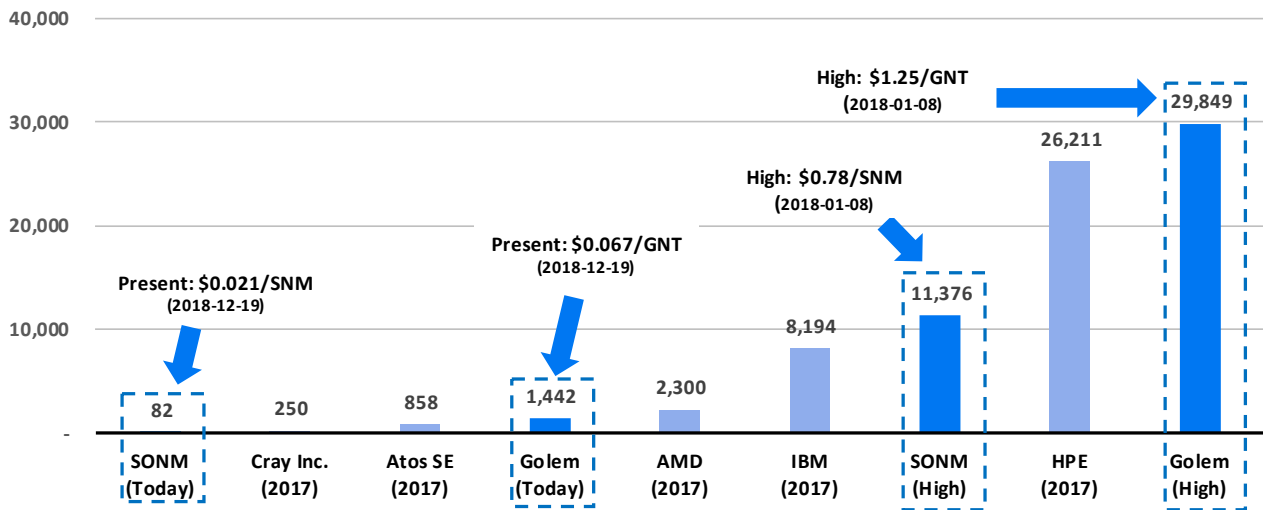
Again coming back to peak token prices, Sonm's implied addressable market size of USD11bn is a figure 40% larger than IBM's USD8bn Systems revenue. Golem's USD30bn is 15% larger than HP Enterprise's Enterprise Group revenue of USD26bn. These were likely extremely stretched assumptions.

Figure 8. 2017 high-performance/grid computing related revenue of select companies (USDmn)

Name	Relevant Business Segment	Relevant Revenue	Total Revenue	Relevant Revenue (%)	Market Cap
Cray Inc.	Product Revenue	250	393	64%	1,023
Atos SE	Big Data & Cybersecurity	858	14,428	6%	8,275
AMD	Enterprise, Embedded and Semi-Custom	2,300	5,329	43%	21,330
IBM	Systems	8,194	79,139	10%	112,610
HPE	Enterprise Group	26,211	28,871	91%	23,576

Source: company data, Coinone Research

Figure 9. GNT & SNM implied market size on different token prices vs. comparable companies (USDmn)



Source: Coinone Research

Cloud infra project EOS

EOS, a well-recognized platform blockchain alongside Ethereum, operates as infra allowing developers to run dApps. Thus there are similarities to existing cloud services.

EOS current prices imply a market size of USD431mn

Investing and staking EOS for renting computing resources on the blockchain is comparable to capex of an IT service company. Thus we utilize Coinone’s “Staking, but no commission” valuation formula to reverse calculate the implied addressable market based on current token price. Here we again first find three variables: 1) token price, 2) number of staked tokens, and 3) required ROI.

Token prices are retrieved from CoinMarketCap, which shows us EOS price of USD2.64 on 19 Dec 2018. Number of staked tokens is calculated by multiplying the staking ratio which we assume to be 90% in the long-term. We arrive at a number of staked tokens of 815,620,606. Lastly, our ROI assumption is 20% which is higher than the typical 15% IRR of venture capital and private equity.

Figure 10. Variables for current price implied addressable market size reverse calc

# of Tokens in Circulation	906,245,118	# of Staked Tokens	815,620,606
Token Price (USD)	2.64	Required Rate of Return	20%
Staking Ratio	90%		

Source: CoinMarketCap, Coinone Research (as of 19 Dec 2018)

We are then able to reverse calculate an implied market size of USD431mn based on current token price. On the other hand, the implied market size was USD3.2bn when EOS prices hit its peak on 29 Apr 2018.

Figure 11. EOS - Implied addressable market size based on current token price

ROI/Price (USD)	1.5	2.0	2.5	2.64	3.0	3.5	4.0
5%	61	82	102	108	122	143	163
10%	122	163	204	215	245	285	326
15%	184	245	306	323	367	428	489
20%	245	326	408	431	489	571	652
25%	306	408	510	538	612	714	816
30%	367	489	612	646	734	856	979
35%	428	571	714	754	856	999	1,142

Source: Coinone Research

Figure 12. EOS - Implied addressable market size based on peak price in early 2018

# of Tokens in Circulation	824,951,312	# of Staked Tokens	742,456,180
Token Price (USD) (High)	21.54	Required Rate of Return	20%
Staking Ratio	90%	Addressable Market Size (USDmn)	3,199

Source: CoinMarketCap, Coinone Research (as of 29 Apr 2018)

Comparable to 2% of Amazon AWS 2018 YTD revenue

We believe EOS may penetrate the cloud IaaS and PaaS market. Gartner forecasts the two markets to reach USD67bn and USD23bn, respectively, by 2020. Compared to this figure, the USD431mn EOS implied market size based on current token price suggests only 0.5% 2020 market share in this industry. Meanwhile, peak EOS price of USD21.54 meant 4% target market share by 2020.

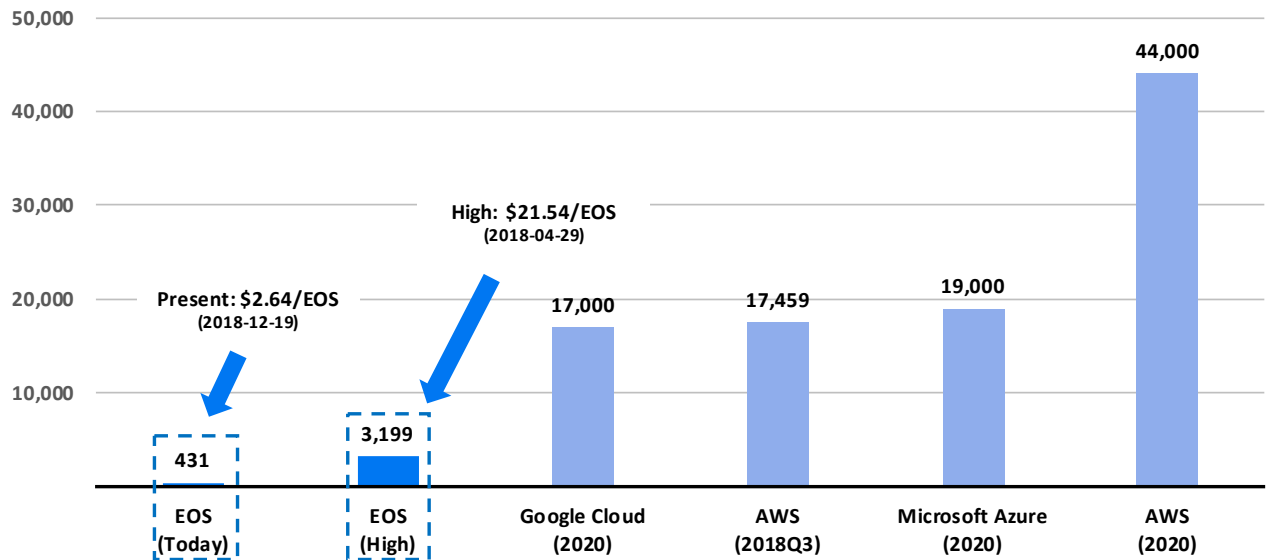
Figure 13. Cloud IaaS and PaaS market size (USDbn)

	2017	2018	2019	2020
PaaS	11.9	15	18.6	22.7
IaaS	30	40.8	52.9	67.4
Total	41.9	55.8	71.5	90.1

Source: Gartner, Coinone Research

We also take a bottom-up view by comparing the calculated implied market size figures to existing players such as Amazon AWS, Microsoft Azure, and Google Cloud. Current implied EOS market size is comparable to 2% of Amazon AWS 2018 YTD revenue. And according to Citi Research expectations on Microsoft Azure and Google Cloud revenues by 2020, EOS implied market size is a mere 3% and 2% of these two estimates. On the other hand, EOS peak price in Apr 2018 would have meant an implied market size equivalent to 18% of AWS 2018 YTD revenue.

Figure 14. EOS implied market size on different token prices vs. comparable companies (USDmn)



Source: Citi Research, Coinone Research

Path forward

Current token prices do not seem stretched based on our addressable market reverse calculation exercise. However, the key from here will be execution capabilities of the three projects. We will need to focus on how effectively these blockchain projects will be able to penetrate and replace existing markets.

Looking for real use cases & products focused on replacing existing players

An average of 1.7 years have passed since the ICO of these three projects, but the pace of development is not impressive considering the size of capital raised. Most of these projects are yet at their early stages and usability for everyday consumers are limited. Thus we believe 2019 will be critical for the projects' long-term fate.

- **User friendly product launches:** Blockchain projects need to introduce real use cases & products in order to compete against existing players. Golem remains at its Golem Brass level which supports only graphic rendering, while Sonm is limited to Linux only. Both projects have limited usability and MAU stands at only 4,000 and 800. We can easily say that more applications must be added and wider usage will require support for relatively more common OS such as Windows and iOS.
- **Focus on replacing existing players:** Another reason many blockchain projects haven't been able to successfully expand may be due to the fact that most teams are focused only on technological development and competition against other blockchain projects rather than looking after usability and business development. However, in reality, user experience is often key compared to the technology itself. It is crucial that blockchain projects provide clear advantages in terms of user experience compared to existing players to win real customers.

Research Analyst

[Dan Kong CAIA](#)

Dan is currently the Head of Research at Coinone. Before that, he was a senior Research Analyst at Deutsche Bank covering the telecom, media, and internet sectors. His team was highly ranked in the world's most competitive research survey, the Institutional Investor All-Asia Research Team Survey, including an Asia top 3 rank in 2016. Dan has a Bachelor of Business Administration from Korea University, and has also completed the Blockchain Strategy Programme executive education at Saïd Business School, University of Oxford. Dan holds professional designations including CAIA (Chartered Alternative Investment Analyst), Certified Research Analyst, and Registered Fund Manager.

[Tony Kim](#)

Tony is currently a Research Analyst at Coinone. Previously he was a manager at SparkLabs Accelerator and SparkLabs Global Ventures. He also held business development and strategy roles at startups in Korea. Tony holds a Bachelor of Commerce from University of Toronto.

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