

2019

Mining Industry Annual Research Report

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EXECUTIVE SUMMARY

- ① Bitcoin **yearly average hashrate increased by more than 80%** in 2019, while the yearly average price dropped by **1.9% YoY**.
- ② The proportion of **transaction fees decreased from \$280 million to \$160 million**, a 43% decrease.
- ③ The global Bitcoin network is mainly concentrated in China, the United States, Canada, Northern Europe, Russia and Georgia.
- ④ After the 3rd halving, **the Bitcoin inflation rate will decrease to ~ 1.7%**, which is much lower than **4.8% - 6.2%** (Gold) and **5%** (M1) issue rate.
- ⑤ ASIC mining hardware manufacturers are relatively concentrated in China, and the market share of the **top 4 manufacturers in 2019 accounted for more than 95% of the total market share**.
- ⑥ The future of the cloud mining market is **outside of China**.
- ⑦ The mining pool segment is not well structured, **partnering with independent third-party agencies is the future direction**.
- ⑧ In the cryptocurrency mining segment, most progressive and positive attitudes are from developed countries, and **the future regulatory direction is positive**.
- ⑨ 2019 is the first year of cryptocurrency financial services development. **A number of financial products will be released** and competition will become more intense in the near future.
- ⑩ Most of the Altcoin mining uses GPUs & CPUs and are mainly located in **North America and Europe**.
- ⑪ PoS is accelerating its acceptance by the industry, and at the same time, it can form an ecosystem through services such as DeFi and centralised lending. Currently, these staking products yield around **8% -12.5% APY**.

2020 Outlook

- ① TokenInsight estimates that the SHA-256 ASIC market shares of Bitmain, Canaan, MicroBT, and Ebang are roughly at **63%, 18%, 10%, 7%** respectively in **2020**.
- ② The 3rd halving should have a limited impact on the price of Bitcoin in the short term but will have **a positive impact in the long run**.
- ③ Mining farms located outside of China are expected to **grow at a faster pace**.
- ④ **The mining pools will start to integrate more Altcoin mining** with huge market potential and risks.
- ⑤ **More cloud mining products will be launched** targeting the broader market.
- ⑥ Altcoin mining may transit from GPU / CPU to FPGA gradually and could be **occupied by ASIC mining in the long run**.
- ⑦ **Cryptocurrency derivatives** will be gradually introduced and developed. Compared with the size of the traditional derivative market, it has **huge market opportunities**.

Mining Pool



Cryptocurrency Mining Industry Landscape

Mining Hardware



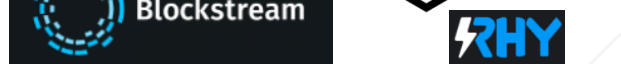
Cloud Mining



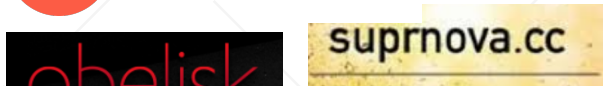
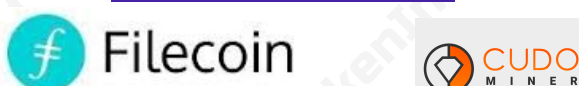
Financial Service



Mining Farm



Altcoin Mining



TIMELINE

01

- As the representatives of Mimble Wimble Protocol, Grin and Beam launched its mainnet.
- Japanese DMM exiting the mining business due to “deteriorating profitability”.

02

- Bitman has announced a new 7nm Bitcoin mining processor that it says offers new levels of energy efficiency.
- Japanese SBI Holdings has established a subsidiary to manufacture mining chips.

03

- Bitcoin mining revenue started to recover slowly from the 18-month low.

04

- China’s NDRC has revealed it is considering the elimination of crypto mining in the country.

05

- Bitmain disclosed 88% reduction in its own Bitcoin mining power.
- Bitcoin mining difficulty reached its all-time high, narrowly edging out the 7.45T difficulty in October 2018.

06

- Bitcoin recovered \$11,000 and hit a 15-month high after Facebook unveiled its Libra project.

07

- Bitfarms listing on the TSX Venture Exchange, Symbol: BITF.
- The Iranian government has come with a specialized electricity tariff pricing plan for Bitcoin mining activities.

08

- Litecoin halved its block rewards.
- Braiins — the company behind Slush Pool — has announced Stratum V2: the second generation mining pool protocol.

09

- Bitcoin network hashrate reached its all time high of 100 EH/s.
- Bitmain launched two new S17 models.

10

- Hut 8 Mining (TSX: HUT) officially opened for trading on the Toronto Stock Exchange on Oct 8th.
- Nervos CKB launched mainnet.
- 18 million bitcoins have been mined.

11

- The aluminum factory of the former Soviet Union turned into the largest mining farm.
- Canaan Creative launched IPO on Nasdaq and became the 1st Chinese mining company to be listed on Nasdaq.
- China’s NDRC dropped mining from the list of industries that need to be “eliminated” from the country.

12

- Monero implemented RandomX update in an attempt to remove ASICs.
- Filecoin launched testnet.

01.

MARKET OVERVIEW

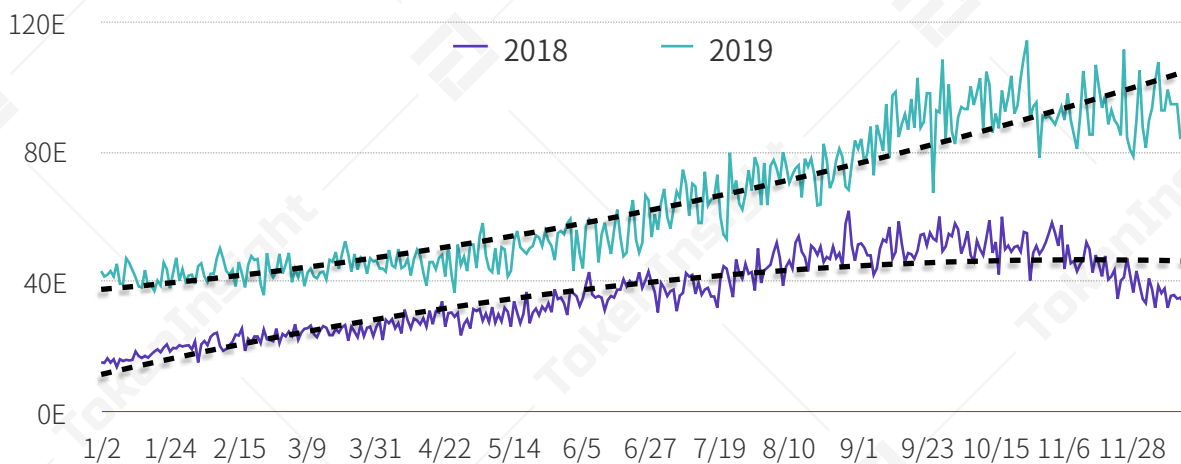
1.1 Bitcoin Network Hashrate

" Bitcoin network hashrate increased significantly, yearly average up 79.3% from 2018.

Compared to 2019 (\$7,519), Bitcoin price (\$7,374) has lost 1.9%, but the yearly average network hashrate has increased by nearly 80%. The performance improvement of the mining hardware is part of the reasons, and the profitability of the Bitcoin mining segment is another contributing factor. The average ROI of the mining industry is about 1 year, and the profitability is incomparable with the traditional industry.

► Change of Bitcoin Network Hashrate

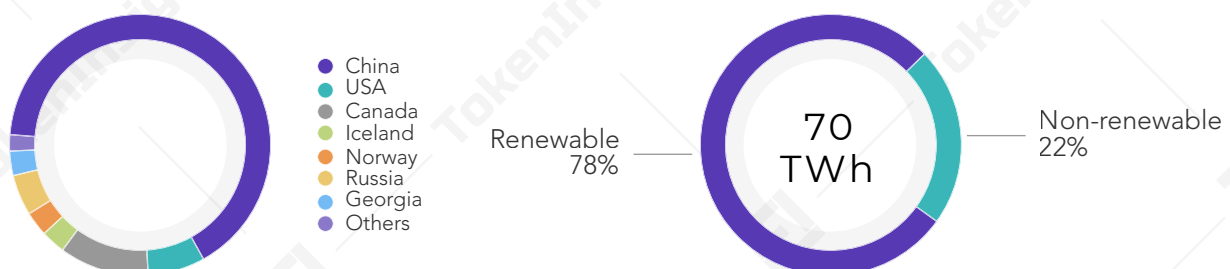
Source: TokenInsight



Geographically, the Bitcoin network hashrate is mainly distributed in the following regions: China, the United States, Canada, Northern Europe, Russia, and Georgia. In terms of energy consumption, renewable energy is accounted for 70% of the total energy consumed.

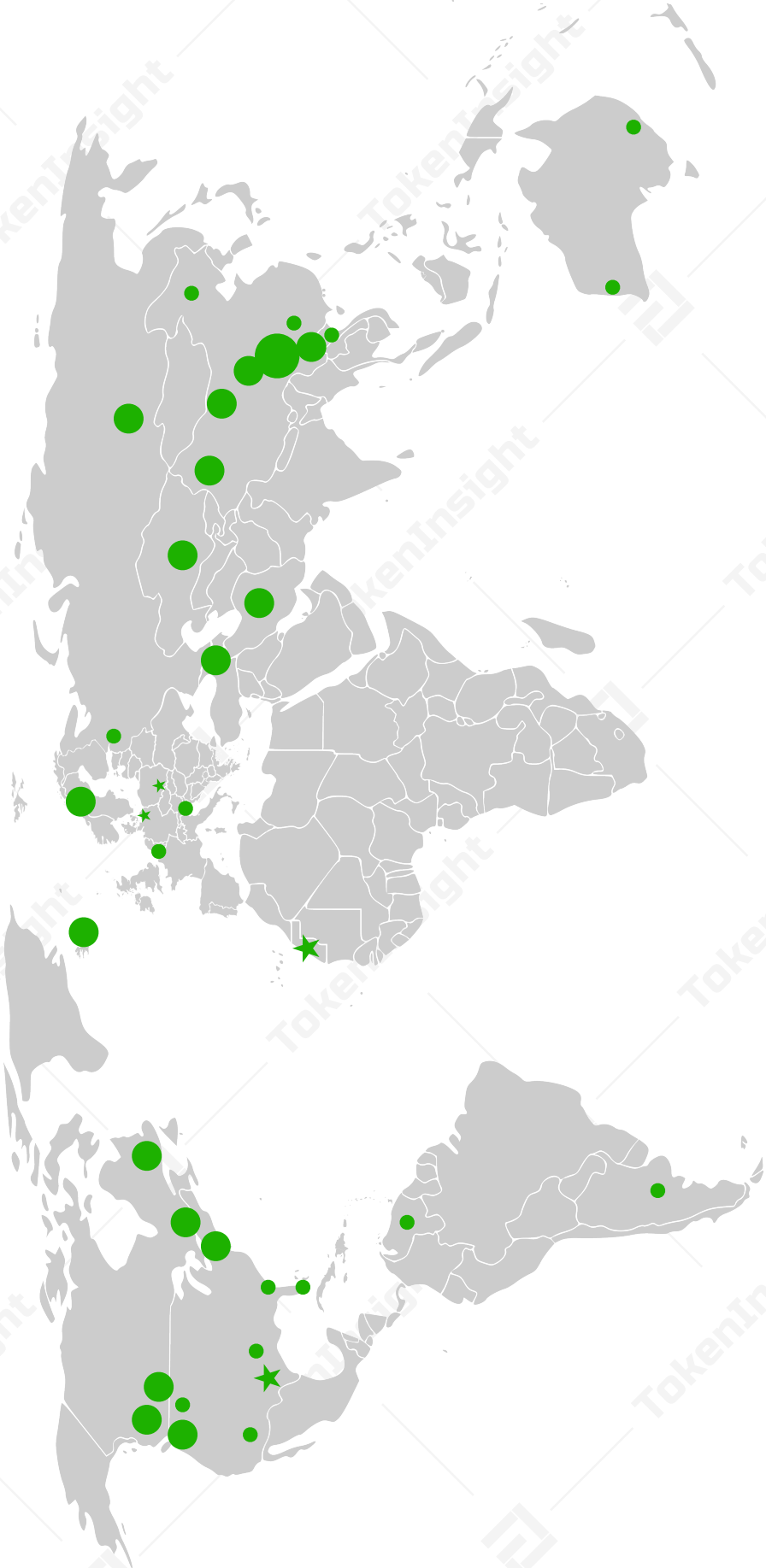
► Geographical distribution of Bitcoin computing power and energy usage

Source: Coinshares, TokenInsight



► The Global Bitcoin Network Hashrate Distribution

Source: CoinShares Research



● Sichuan, China

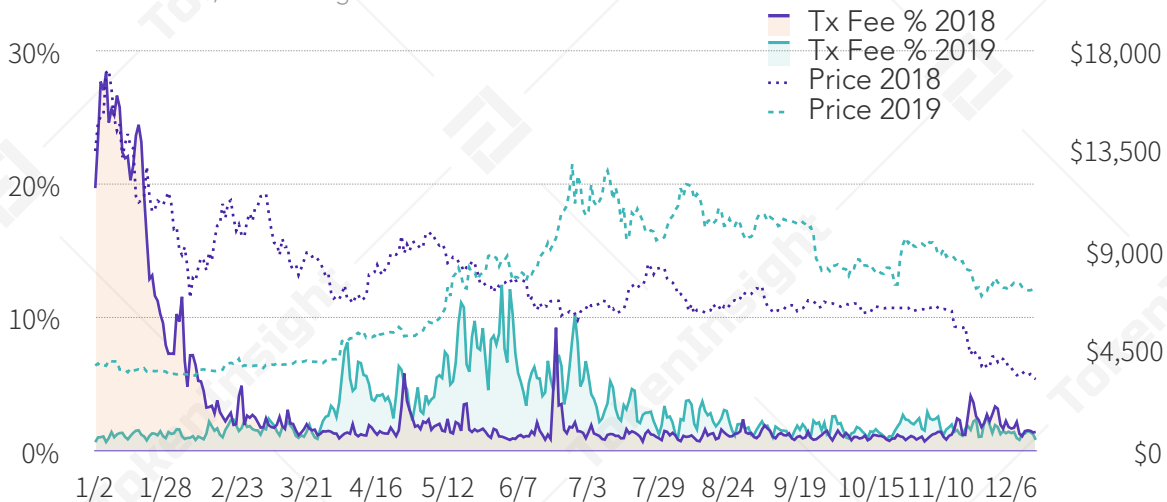
★ Possible Future Region

1.2 Mining Revenue

" Transaction fees dropped from \$280 million to \$160 million YoY, a 43% decrease."

► Bitcoin Mining Revenue

Source: JDCloud, TokenInsight



Miners' income is still heavily dependent on Coinbase rewards at present, and the percentage of income derived from transaction fees is only accounted for 3.07% of total mining revenue in 2019, which is a decrease of 40.7% compared to 2018 (5.18%).

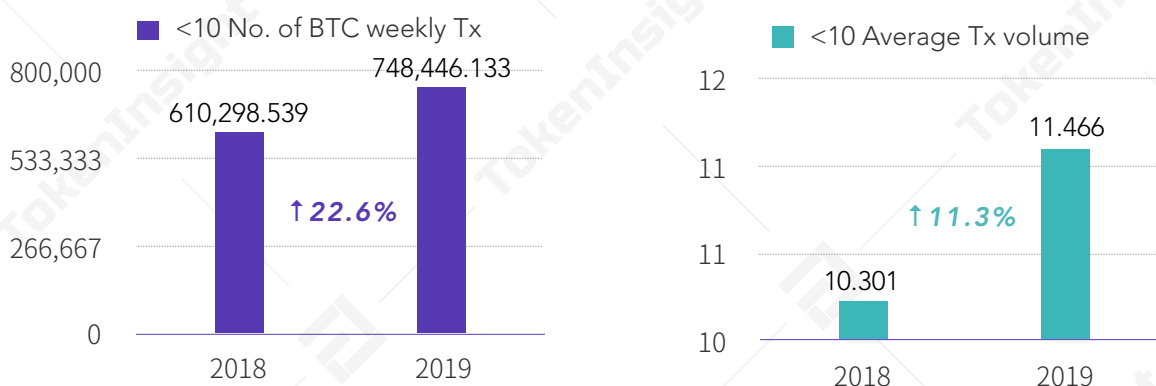
"In a few decades when the reward get too small, the transaction fee will become the main compensation for nodes. I'm sure the in 20 years there will either be very large transaction volume or no volume"

Satoshi Nakamoto

The extreme case of halving mining rewards is the complete disappearance of the block reward. Historically, higher transaction fees were correlated by the skyrocketing price of Bitcoin. If there is no block reward, Bitcoin's current price is far from being able to meet the existing mining investment. The extreme situation of the Bitcoin network stated by Satoshi Nakamoto implies the extreme direction of the future Bitcoin price. We can also discover a growing trend of large transactions based on the onchain transaction data.

► Bitcoin Onchain Transaction data

Source: JDCloud, TokenInsight



1.3 The 3rd Halving

" After the 3rd halving, the Bitcoin inflation rate will decrease to around 1.7%, which is much lower than the 4.8% - 6.2% (Gold) and 5% (M1) issue rate.

In the long run, a halving on the supply side will fuel the price of Bitcoin. After halving, if Bitcoin is to maintain the \$7,000 price level, the **required daily capital inflow will be reduced by \$6.3 million, equivalent to a nearly \$200 million monthly reduction**. Selling pressure will be greatly reduced. As a type of alternative investment, Bitcoin's annual supply growth rate will be reduced to 1.7%, which is much lower than any other type of asset class. In addition, Bitcoin itself also presents a convenient way to store wealth and act as a low cost money transfer channel.

Although the Bitcoin halving is a fact known by the market. We believe that the market is far from efficient, and thus **not priced in** "the 3rd halving event".

In the long run, the main factor supporting the Bitcoin price is the inflow of new investors. The existing capital currently within the market can not help to continue boosting the price of Bitcoin. The number of Bitcoin wallet addresses has continued to grow steadily, and the compliant channels for Bitcoin investment are also constantly increasing, thus **2020 is likely to be an explosive year**.

► The History of Bitcoin Halving

	1st Halving	2nd Halving	3rd Halving
Price change	\$2.01-\$1,178	\$163.65-\$19,800	\$3,180-?
Before halving	\$2.01-\$12.22	\$163.65-\$657.61	\$3,180-\$7,379
After halving	\$12.21-\$1,178	\$657.61-\$19,800	-
Bull duration	12+12 months	9+16 months	-
Max drawdown	50.42%	39.55%	-
Max drawdown date	100 days before	24 days before	-
All time high date	368 days after	525 days after	-
Bear duration	14 months	12 months	-

Source: TokenInsight

From the mining perspective, the all-in mining cost of the entire network will inevitably rise after halving. It means an exit for the lower-end mining hardwares, with an active ASICs second-hand market, potentially resulting in fierce price competition among the ASIC manufacturers. In addition, the mining farm's profit derived from the electricity bill will also be reduced accordingly.

02.

MINING HARDWARE

" The distribution of SHA-256 ASIC mining hardware manufacturers is concentrated, and the top 4 manufacturers in 2019 are accounted for more than 95% of the total market.

TokenInsight conducted several in-depth interviews and market surveys with the industry professionals, combining with the estimates from Frost & Sullivan, TokenInsight estimates that the proportion of SHA-256 ASIC mining hardware market shares in 2019, and predicts the 2020 market shares as follows.

► 2019, 2020 SHA-256 ASIC Mining Hardware Market Shares

Ranking	Manufacturers	2019	2020(Predicted)
1	Bitmain	55%-58%	63%
2	MicroBT	20%-25%	10%
3	Canaan	10%-15%	18%
4	Ebang	5%-7%	7%
5	Others	~5%	~2%
Total		100%	100%

Source: Frost & Sullivan, TokenInsight

Bitmain dominates the market in 2019 with a conservative estimate market share of 55%. The industry is extremely concentrated, with the top four companies accounted for ~95% of the market.

It is worth noting that **although the market power of Bitmain is strong, its market share has reduced significantly in 2019 compare with 2017 and 2018.**

With Wu Jihan's returned to Bitmain on October 27, 2019, and the launch of several initiatives including instalment payment, joint mining, and options hedging, Bitmain is expected to snatch a greater market share in 2020. On November 21st, 2019 Canaan took the lead in listing on the NASDAQ with the support from the local government (Hangzhou) to raise \$90 million, TokenInsight expects Canaan will secure a higher market share in 2020. It is reported that Ebang is actively preparing to go public in 2020. TokenInsight believes that it will have a positive impact on its market share and further squeeze out other players. Although the MicroBT has seized more than 20% of the market share in 2019, its founder Yang Zuoxing, was arrested on December 12, 2019 for occupational crime. TokenInsight believes that the market will not stand with the side of MicroBT.

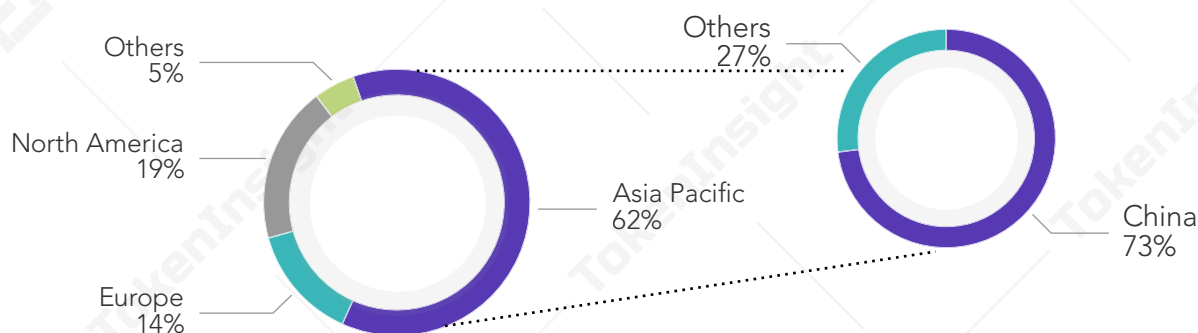
2.1 Distribution of Mining Hardware Manufactures

" More than 60% of ASIC mining hardware manufacturers are distributed in the Asia-Pacific region, of which 73% are from China."

According to the report released by Cambridge, the geographical distribution of ASIC mining hardware manufacturers handling the SHA-256 algorithm is relatively concentrated, and there is a tendency to form an oligopoly market. The specific share is shown in the figure below.

► Distribution of Mining Hardware Manufactures

Source: Cambridge



With the continuous opening up of Chinese policies and the active financing expansion of the Chinese mining hardware manufacturers, **TokenInsight believes that they will further strengthen the market power in 2020.**

2.2 Upstream Supply Chain: ASIC Chips

" The support of chip makers will largely determine the success or failure of mining hardware manufacturers."

ASIC dedicated chips are the key factor that determines the power consumption and performance of the ASIC miners. Therefore, the supply and the development of chips have a profound impact on the mining hardware market. TSMC is the chips supplier to Bitmain, and Samsung Electronics provides chips to Canaan and MicroBT.

The latest model Antminer S17 Pro introduced by Bitmain adopts the 2nd-generation 7nm chip developed in house, which is the most advanced ASIC dedicated chip currently in mass production. MicroBT has recently launched WhatsMiner M30S, using 8nm chips produced by Samsung. It is reported that Bitmain is indeed a TSMC 5nm chip customer. At present, 5nm chips are already in the tape-out stage, and 5nm mining hardware may be released early next year.

Whether it is TSMC's 5nm, 7nm chips or Samsung's 8nm chips, the chip supply is relatively in shortage, and at the same time, mining hardware manufactures also have to compete with mobile phones for chips supply.

03.

CLOUD MINING

" Cloud mining products show more diversification in 2019.

Cloud mining, as a type of mining contract, lowers the barrier of mining and meets the needs of different groups for investment in mining Bitcoin. As the market attention and interests continue to increase, major platforms have launched cloud mining products in 2019 and showing a trend of diversification.

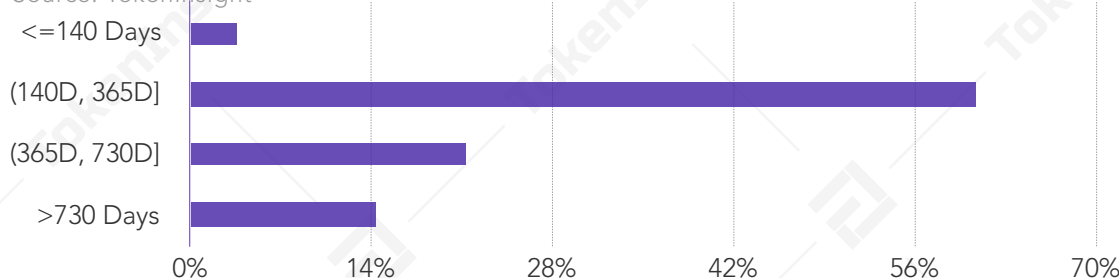
3.1 Diversification

At present, cloud mining platforms are relatively concentrated with 9 platforms represented by Bitdeer, Quickmining, Renrenbit, RHY, Niubit, GenesisMining, etc. share more than 80% of the market. Among them, there are clear differences between China and the rest of the market.

An increasing number of companies have introduced cloud mining in 2019, with different fee structures, contract durations, settlement methods, and mining pool options. At present, the duration of a cloud mining contract on the market varies greatly. The following figure shows the distribution of the cloud mining contract durations (days) tracked by TokenInsight.

► Cloud mining products duration (days) distribution

Source: TokenInsight



0.5-1 year contracts are the most popular. As of the end of the 3rd halving, there are more cloud mining products, which indirectly reflects that the market is overall positive on the Bitcoin halving event and thus constantly building the products.

The diversity of cloud mining is also reflected in the large differences in the electricity price, management fees and settlement methods. Due to the difference in the payout method of the mining pools (PPLNS / PPS), the actual rewards vary. Different platforms have different structures on their products. Some platforms commit to guarantee sufficient hashrate, and others do not, and thus the user's income is determined by the actual hashrate. Finally, the stability of different platforms varies greatly.

3.2 Profitability

" Most of the cloud mining products are unprofitable under current network difficulty and Bitcoin price."

If we consider that block halving event is around May 14, 2020, under the current network difficulty and price, most of the cloud mining products on the market are not worth investing in. Assume that as the block reward is halved, the hashrate of the entire network is also reduced by the same proportion; **less than half of the cloud mining products tracked by TokenInsight cannot make a positive ROI**. The figure below shows the costs and benefits of best-performing products for mainstream cloud mining service providers.

► 2019 Cloud Mining Products Performance

Service Provider	Hashrate(T)	Contract Duration(D)	Fees(\$)	Electricity Cost(\$)	Total Cost(\$)	ROI (Days)
Bitdeer	50	360	1,384	1,170	2,554	394
ViaBTC	100	360	1,651	-	-	296
Genesis Mining	140	730	5,740	6,132	11,872	545
RHY.COM	1	365	N/A	N/A	45	333
Niubit	1	1,095	4	9	13	687

Source: Bitdeer, ViaBTC, Genesis Mining, RHY.com, Niubit

Date: 2019.12.17; BTC price: \$6,928; Mining Difficulty: 12.88T.

In addition, the average daily electricity cost charged by service providers vary widely, ranging from \$0.06 to \$0.35/T/s. Among them, non-Chinese cloud mining products generally charge a higher electricity fee than those in China.

3.3 Cloud Mining V.S. Hardware Mining

Compared with direct investment in mining hardware, cloud mining has the following advantages:

- Low capital requirements, with some products costing less than \$100;
- Low technical barrier, providing easy access to users;
- Flexible investment choices.

Therefore, cloud mining products have a large market among those who are optimistic about Bitcoin but do not have an in-depth understanding of the mining industry. Especially in regions such as Japan and South Korea, cloud mining products are convenient tools to invest in BTC mining due to restrictions on power resources and geographical location.

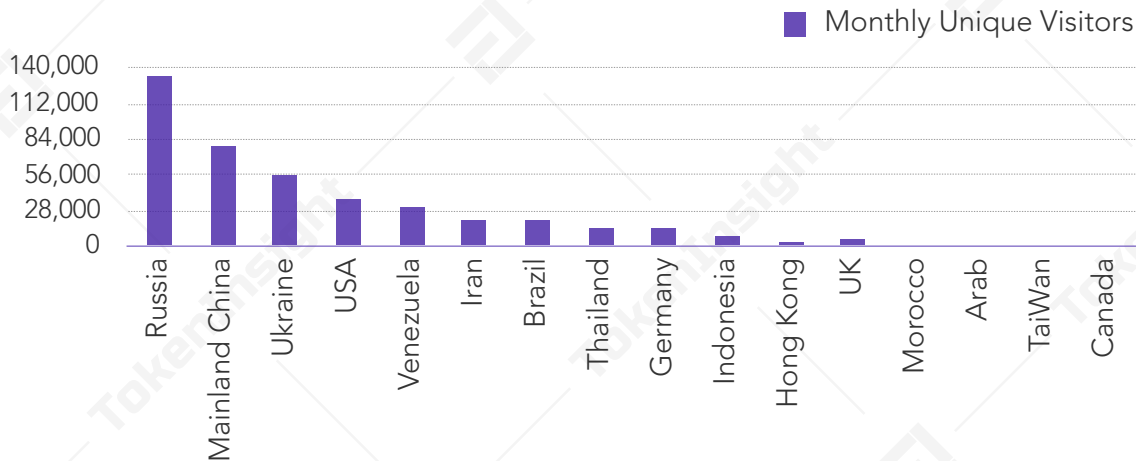
3.4 User Analysis

" The 'blue ocean' market for cloud mining is outside of China.

The number of users in Russia is staggering. With the ease of Russia's policies on cryptocurrency and the weather advantages brought by the cold climate, TokenInsight believes that Russia will further develop and participate in Bitcoin mining in 2020.

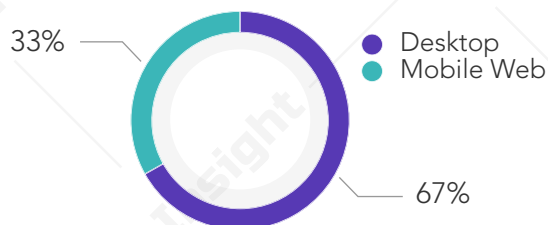
► Statistics of Cloud Mining Users

Source: SimilarWeb



► Device Distribution

Source: SimilarWeb

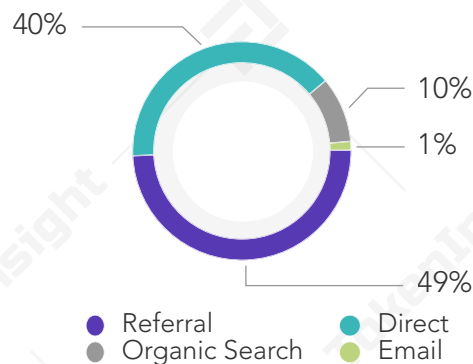


More than 50% of the users are currently using Desktop to access the cloud mining platform, however mobile/web create easier access than desktop, TokenInsight believes that a shift in device distribution in 2020 would create a wider industry adoption of cloud mining.

Nearly half of the visitors have been redirected to the cloud mining platform by referral. With the increasing competition in the industry, we should see a stronger marketing push via referral, ads channels.

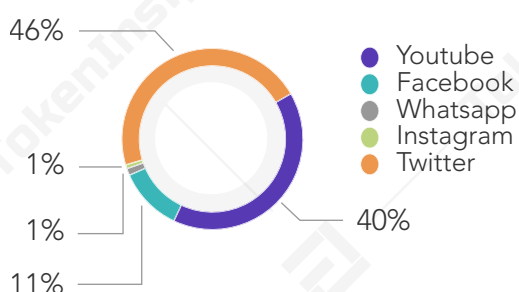
► Sales Channels Distribution

Source: SimilarWeb



► Social Media Channels Distribution

Source: SimilarWeb



Twitter is the main gateway for acquiring information on cloud mining, followed by Youtube channel, matching the industry social media distribution.

04.

MINING POOLS

" Diversification and differentiation are the keys for the future development of the mining pool; at the same time, the mining pool operation will place more emphasis on risk management.

4.1 Fees and Payout Methods

► Mining Pools Comparison

Mining Pool	Fees	Payout Methods	Ranking
Poolin	4%	FPPS	1
F2Pool	2.5%	PPS+	2
BTC.com	4%	FPPS	3
AntPool	0%, 4%	PPLNS, PPS+	4
ViaBTC	4%, 2.5%	PPS+	5
SlushPool	2%	BPM	8

Source: Poolin, F2Pool, [BTC.com](https://www.btc.com), AntPool, ViaBTC, SlushPool; Date: 2019.12

4.2 Current Development

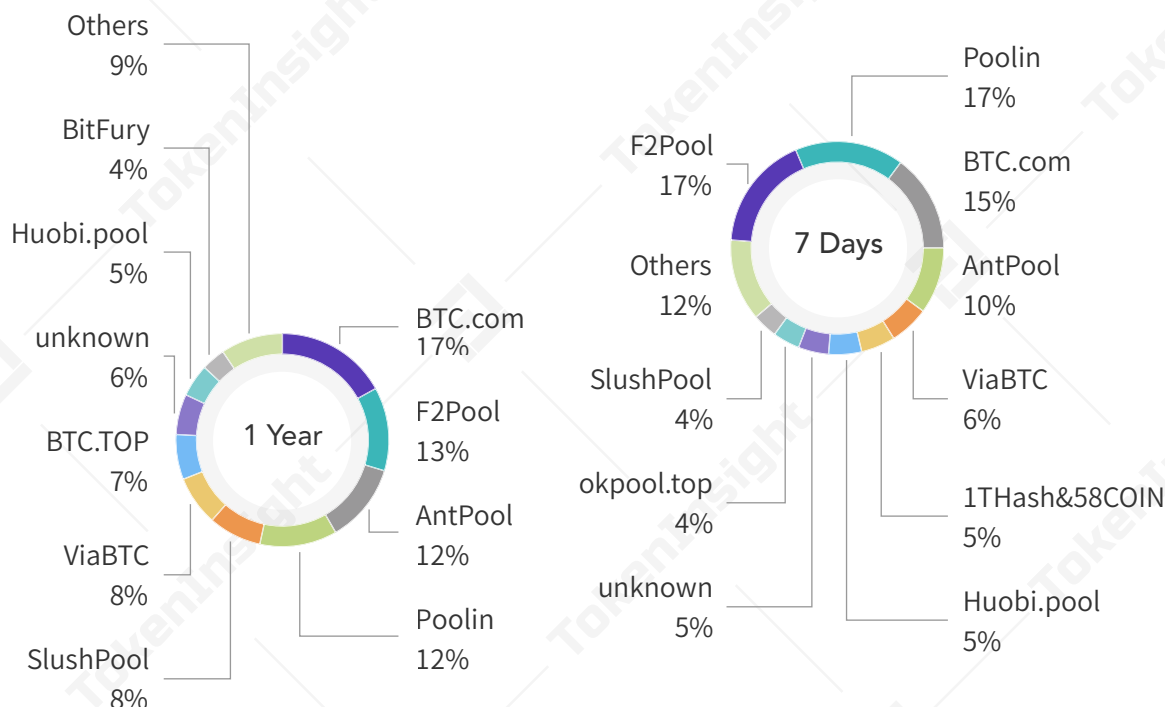
Since 2019, the mining pool's rank has changed significantly. Although the one-year cumulative computing power for BTC.COM still leading the market, in the short term, F2Pool and Poolin have exceeded BTC.com. The distribution of hashrate in the top tier mining pools is greatly affected by the market shares of mining hardware manufacturers in the short term. Thus, **the change in the mining hardware manufacturers' market dynamic has a direct impact on the mining pools.**

Compared with the lower-ranked mining pools, the top tier mining pools have no obvious advantages in terms of fees and payout methods, which indicates that users have a wide range of options to choose from.

Through in-depth interviews with ViaBTC and Poolin, the technical strength of the mining pool and the level of service provided are the keys to its ability to attract and maintain users. The top tier mining pools have strong advantages in the hashrate stability, platform security, mobile app user experience, and brand effects.

► Mining Pools Ranking

Source: BTC.COM



TokenInsight has learned that in order to further expand the market share, the major mining pools have begun to differentiate their strategies: launching more investment tools for users, actively promoting the construction of the ecosystem, and expanding distribution channels. With the development of the mining pools, its revenue model has become increasingly diversified. In addition to the income from the mining pool fees, a greater percentage of income comes from the derivative tools, the product service fees and the revenue realisation of website traffic.

In addition, the transparency and the supervision of the mining pools are problems faced in the industry, and major mining pools are also actively building brand credibility.

TokenInsight believes that inspection and reporting in cooperation with independent third parties and decentralized mining pool protocol are the future directions.

4.3 Risk Analysis

The operation and management of mining pools face various risks. Risk monitoring is at the core of whether mining pools can achieve long-term and stable development. Common risks faced by mining pools include

- Pool's luck risk
- Block withholding attack
- Mining hardware homogeneity risk

4.4 Profit and Algorithm Auto Switching

" Further integration of automatic algorithm switching on Altcoins is expected in 2020 to better facilitate the mining profit realization."

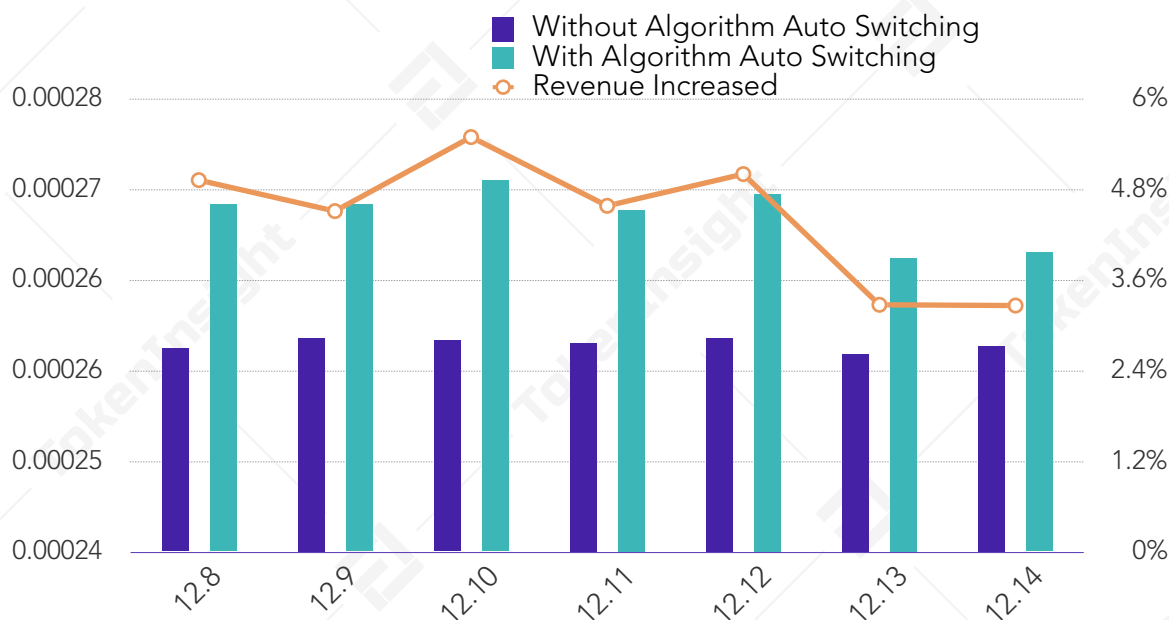
Automatic algorithm switching strategy generally outperforms the general mining strategy by 3%~4%, providing miners additional income while saving the hassle of switching the mining hardware manually.

In order to facilitate an effective auto-switching strategy, a mining pool tends to support multiple algorithms with multiple coins to facilitate the discovery of hashrate, difficulty and price inefficiency.

There are also risks that need to be considered before supporting a particular algorithm for automatic switchings, such as the aggregate liquidity and the volatility of coins on a particular algorithm, the variability of the hashrate and the difficulty adjustment method.

► Improvement of Mining Revenue by Algorithm Auto Switching (Test Data)

Source: Antpool, TokenInsight; Date: 2019.12.08-2019.12.14; Mining Hardware: Antminer S9



The [AntPool](#) is one of the tier 1 mining pools that supports the Algorithm Auto Switching function. At present, AntPool supports SHA-256 algorithm, which means that it currently supports the switching between the 3 cryptocurrencies: BTC, BCH, and BSV. Its smart switching function can theoretically improve mining returns.

Founded in August 2014, AntPool is the leading cryptocurrency mining pool and constantly leading the market in terms of the hashrate. As for today, AntPool supports more than 20 cryptocurrencies with an easy to use interface. AntPool is also constantly improving and developing its products to continue serving its users with high standards.

4.5 Mining Farms

"Hut 8 and Bitfarms located in Canada are the only two public cryptocurrency miners to have executed meaningful financing in 2019, offering traditional investors an opportunity to gain indirect exposure to the cryptocurrency market."

Founded in 2017, Hut 8 has raised \$140 million through private placements and debt, which do not require a public prospectus. Bitfarms closed a US\$20 million debt financing through NYC-based lender Dominion Capital.

We are seeing waves of mining farms building outside of China; Whinstone US and Northern Bitcoin AG have merged to set up the "largest Bitcoin mining farm worldwide" in Texas with one-gigawatt capacity (*3 instalments) before that Bitmain also launched 50-megawatt farm in Texas, it will then later expand to 300 megawatts. Crusoe Energy Systems Builds Gas-to-Computing Crypto Mining Farm, installing 70 gas to computing units, each of these units is expected to hold up to 1Megawatt.

► Bitfarms, Hut 8 Mining Benchmark and Comparison

	Bitfarms	Hut 8 Mining	Bitcoin Farm A
Hashrate	800 PH/s	963 PH/s	1000 PH/s
% Network	~0.84%	~1.01%	~1.1%
Total Power	55 MW	Max 109.4 MW	~71.4 MW
Efficiency	15 PH/MW	12.7 PH/MW	~14 PH/MW
Q3 Average Production Cost	\$3482	\$4363	\$3397
Mining Hardwares	Mainly E10, M20s, A10	94 Blockboxes with Bitfury ASICs	Mixture of ASICs
Market Cap	CA\$43 Million	CA\$103.1 Million	-

Source: Bitfarms, Hut 8 Mining, News

The development of the mining farms outside of China is expected to continue at a faster pace in 2020 due to,

1. Regulatory stability on cryptocurrency.
2. Demand from traditional investors to gain indirect exposure to the cryptocurrency market.
3. Structured and progressive legal framework.
4. Increasing awareness of Bitcoin and cryptocurrency outside of China on the national level.
5. Interests to leverage Bitcoin mining farms to smooth out the electricity grid fluctuation or to support the off-peak electricity demand in order to support the wholesale electricity price.

05.

REGULATIONS

" Most of the developed countries have progressive attitudes towards cryptocurrency mining.

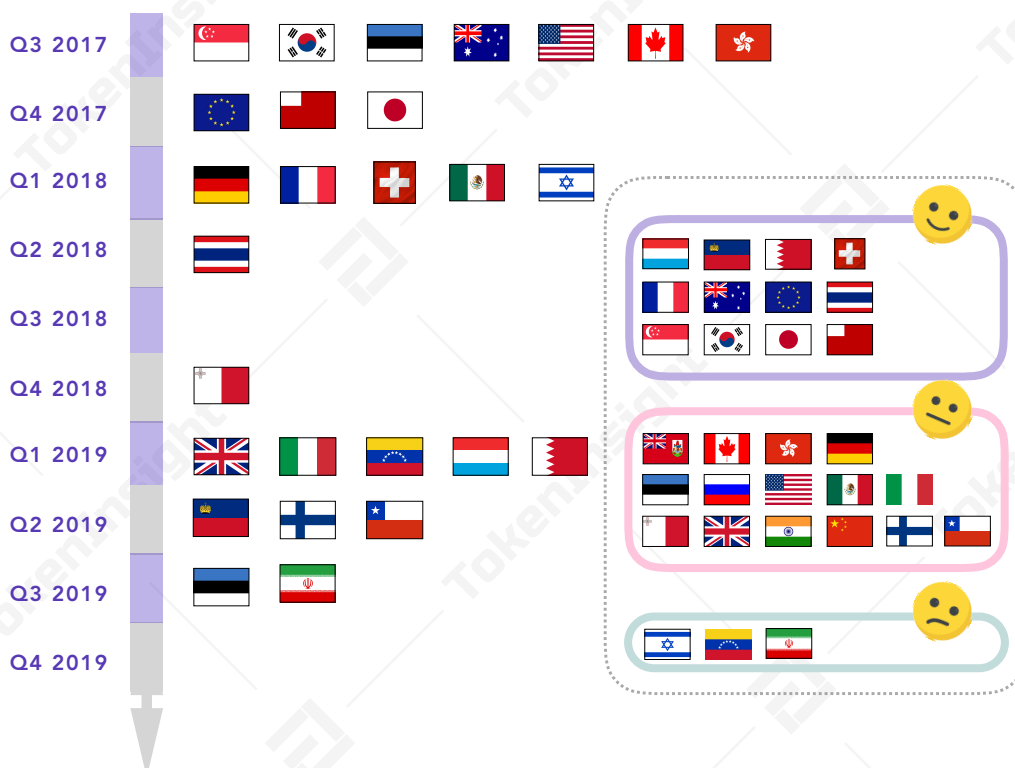
The majority of Bitcoin mining farms outside of China are concentrated in the USA, Canada, Czech republic, Iceland, Russia, Sweden, etc. Low electricity cost, **well-structured legal framework, relatively matured financial markets are the main factors**. These mining farms are utilising public infrastructure in a better way by converting abandoned facilities to the Bitcoin mining farms, and creating a more environmental friendly Bitcoin mining ecosystem by leveraging renewable energy such as wind and solar.

With the removal of Bitcoin mining from the list of industries to be eliminated in November 2019, China has again shifted its regulatory stand on Blockchain. The probability of future policy change on cryptocurrency in general is high with no clear direction on Bitcoin mining.

There might be some regulatory changes in 2020 on cryptocurrency-related mining services in some countries, but we predict that **the majority of changes would be healthy and progressive**. The support of mining farms can be shown on the government level where Bitfarms and Hut8 mining have been listed on the Canadian stock exchange in 2019, further strengthen the industry recognition in the Northern America region.

► Regulatory Perspectives on Cryptocurrency

Source: TokenInsight



06.

FINANCIAL PRODUCTS

" Diversified financial products will be launched in the future, paving the way of fierce competition in 2020.

The cryptocurrency market is volatile, risks are prohibited high compared to the traditional equity market. Without proper risk management tools, the cryptocurrency financial market is inefficient, lacking appropriate risk management and thus limiting the proper price discovery channels. Bitcoin lending and hedging are the two main financial products targeting Bitcoin miners.

► Selected Bitcoin Lending Products on the Market

Service Provider	Bitcoin Lending Products		
	Annualised Yield	Collateral Ratio	Terms (Days)
Matrixport	9.125%	58.2%	120
NEXO	5.9%	52.8%	-
Beibao Finance	14.782%	60.3%	-
Bixin Finance	14.706%	45%-75%	60
RenRen Bitcoin	13.44%	65%	365

Source: Relevant Sources, TokenInsight, Data as of 2019.12.27

At present, the lending products on the market are relatively diversified, the interest rates and collateral rates among the products vary. **On average, the lending products on the market yield more than 10% while the collateral ratio is generally between 50%-60%.**

We believe that there will be **an increasing number of mining related financial products launching in 2020**, however due to the complexity of these products, a limited number of participants will utilise them and most will be institutional and individuals who understand the instruments.

The market will start to see a growing number of structured financial products on the market, for example, 1. Bitcoin Variance Swap 2. Non-directional structured products 3. Bitcoin Structured Option Products, etc **to help miners to achieve desired risk exposures.**

07.

COMPREHENSIVE SERVICE PROVIDER

" Problems in the cryptocurrency mining industry have spawned a series of comprehensive mining service providers and they are trying to provide one-stop solutions for the industry.

Cryptocurrency mining has developed rapidly, and high returns have attracted a huge amount of capital. Apart from the high volatility of the cryptocurrency market in general, there are various other issues in the industry.

Mining hardware: The purchasing channels of mining hardware are not transparent, and the unbalanced development of the secondary market forces users to pay higher prices; the threshold for manufacturers is high, and the rights of upstream companies (chip manufacturers) are huge.

Mining farms: There are moral hazard problems regarding mining farm management. Investors cannot always pay on-site visits, and control is often in the hands of site managers. The misalignment often results in serious capital losses of investors.

Cloud mining: problems with cloud mining are similar to those of a mining farm, or even more serious. For cloud mining service providers, since users cannot effectively grasp the cloud mining operational information at all, it is difficult to conduct proper due diligence. This leads to a scenario where in addition to the situation in mining farms, cloud mining service could even directly evolve into a "Ponzi scheme."

Comprehensive mining service providers generally provide services for the miners, building connections among isolated islands such as mining hardware purchasing, hosting, leasing, cloud mining, and financial services, and try to provide one-stop solutions for miners, investors and institutions who plan to enter the cryptocurrency mining industry.



Quick Mining

Quick Mining, based on the blockchain computing power, is aiming to build a comprehensive mining service platform of global blockchain, integrating mining machines trading, hosting, location leasing, cloud computing service, information service and financial service.

Quick Mining currently has more than ¥100 million in assets of mainstream mining machines and controls hashrate of over 400PH /s. In addition, it maintains a cooperative relationship with Poolin, Huobi.pool, F2Pool and OKExPool. It also reached a strategic partnership with Nasdaq-listed Canaan Creative and joined the global alliance of the mining industry.

The Quick Mining platform is expected to complete prototype development and design and then launch officially in Q1 2020. It's been devoted to optimizing the cash flow management of customers' mining machine investment and to continue expanding the scope of its financial services to provide products such as pledged loans and hedging.

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08.

ALTCOIN MINING




8.1 Introduction to the Altcoin Mining

" Altcoin mining is vastly different compared to Bitcoin mining, and it is much more complex than the Bitcoin mining market, thus it is in the relatively early stage of its lifecycle."

According to Coinmarketcap, there are more than 400 mineable coins on the market, however there are only 63 mineable coins (Excl. BTC) with ~\$100K+ 24 hours trading volume. It is accounted for roughly 81.9% (Incl. BTC) of the total cryptocurrency market cap.

Unlike Bitcoin ASIC mining, the majority of smaller Altcoins are still mined by GPUs, and are concentrated outside of China.

► [Selected Altcoin Mining Statistic](#)

Project	No. Of Pools	Pools Concentration	Algorithm	Hashrate %
 Grin	13	Top 2 Pools >50%	Cuckaroo29: GPUs; Cuckaroo31: ASICs	Asia-Pacific: 54% Europe: 23% North America: 23%
 Monero	43	Top 2 Pools >50%	RandomX: GPUs & CPUs	Asia-Pacific: 14% Europe: 51% North America: 35%
 Ethereum	71	Top 2 Pools >50%	Ethash: GPUs & ASICs	Asia-Pacific: 29% Europe: 49% North America: 22%

Source: Mining Pool Stats, TokenInsight

Bitcoin's PoW miners continue dominating the cryptocurrency mining market both in terms of industry value and industry revenue; however, the Altcoin PoW mining market is also starting to grow significantly. Surveys have shown that 60% surveyed large companies mine multiple crypto assets whereas small scale miners tend to mine a very limited number of crypto assets, possible due to,

1. Information asymmetric between the miners
2. Learning and research costs are significantly high in the small scale miner groups
3. High barrier to entries due to time, knowledge, information and data.

Overall, this suggests that the scale in the mining segment is an effective factor for reducing barriers to entry to the local ecosystem.

8.2 Altcoin Mining Pool and Altcoins

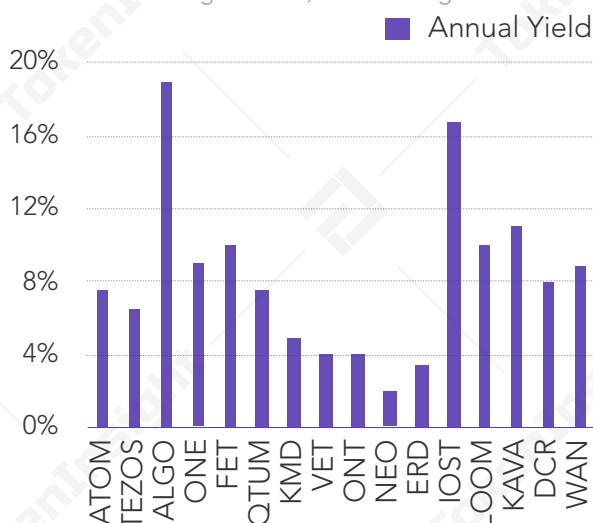
" With an average of 11 Pow Altcoins supported by mining pools, and the growth of PoS assets, There is a trend that the mining pool is looking at the altcoin mining & Staking market, but the risks and uncertainty could restrict its growth.

With some major projects such as Filecoin, Cosmos, Kadena, Nervos, etc launched or launching its mainnet in the near future and the Proof of Stake (PoS) ecosystem attracting strong market attention. Altcoin mining and staking are entering the "main" stage. The current Altcoin mining market is very much fragmented, with the majority of the Altcoin mining pools being run by the communities. Some big players such as F2Pool Lab have integrated some popular Altcoins such as Beam, Grin, Nervos.

The staking market is also gaining traction; according to Stakingrewards, there are more than 66 staking service providers globally with Binance staking supporting 15+ different projects, Stake.Fish is adding 11 projects on top of the existing 6 staking projects. EOS, XTZ and ATOM are the top three staking projects on the market as for today, with more than 61 staking projects on the market, accounted for roughly 5.5% of the entire market cap of cryptocurrency. **The average reward rate started at ~8.5% at the beginning of the year, and finished off at 12.5% at the end of 2019.**

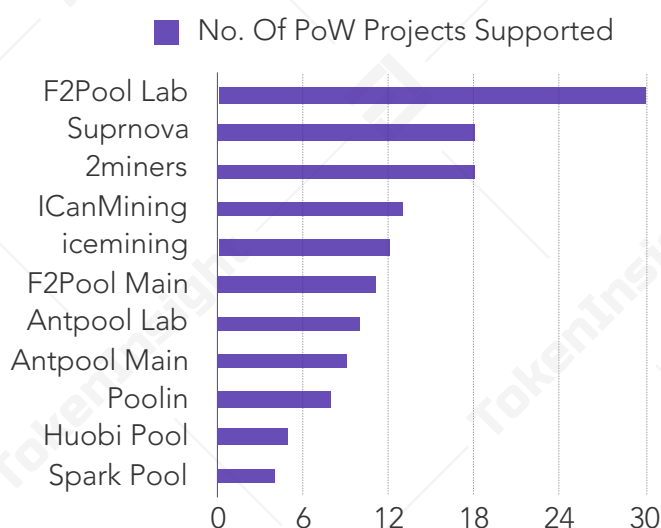
► PoS staking Statistic

Source: Stakingrewards, TokenInsight



► PoW mining pools Statistic

Source: Stakingrewards, TokenInsight



PoW, PoS and its variation (e.g. dPoS) will maintain the dominate positions in the cryptocurrency industry for the foreseeable future as these consensus algorithms are well tested by the market. We estimate that **Altcoins mining and staking will start to attract a strong market attention due to the popularity- an increasing number of mining pools will start to integrate Altcoin PoW mining and staking to differentiate their services in order to compete with others in the industry.**

8.3 Filecoin and IPFS

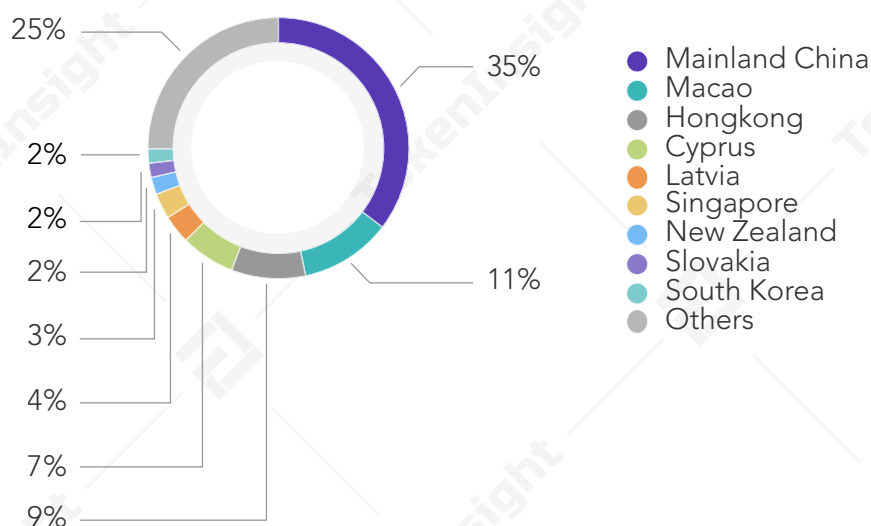
" The launch of Filecoin's mainnet is very much anticipated by the mining community. FIL IOU futures is priced at \$3-\$5."

As a representative of the alternative consensus mechanism, Filecoin uses Proof of Replication, a new kind of Proof of Storage to continue innovating the industry.

Filecoin mining was and is a popular topic in the mining industry, especially in the Asia-Pacific region. It has launched its testnet on December 11 2019 to test, benchmark and optimise the network, with a tentative mainnet launch date on March 2020.

Filecoin Search Interest Geographical Distribution

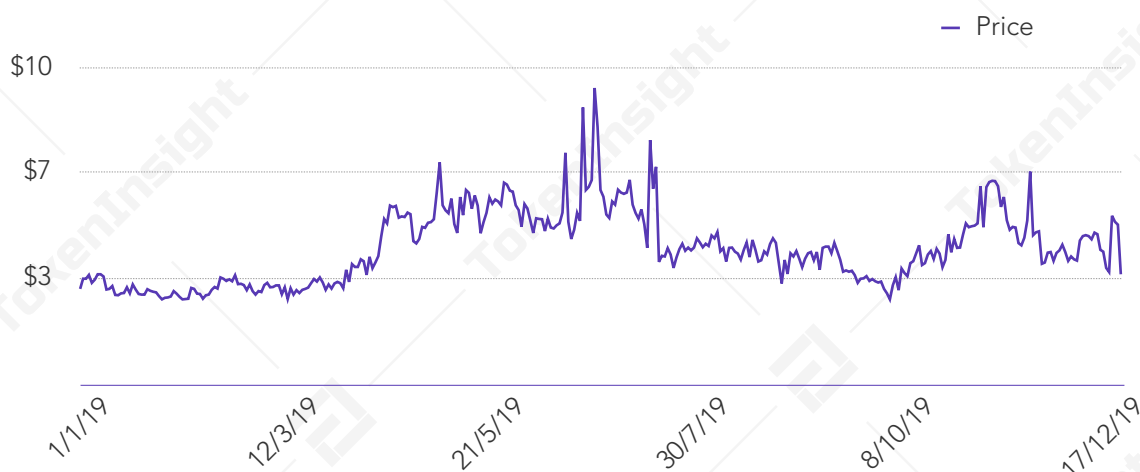
Source: Google Trend



According to Google trend, Mainland China is the top region searching Filecoin in 2019, accounted for 35% interest over time and followed by Hong Kong and Macau. According to CoinmarketCap, there are 4 exchanges listed Filecoin IOU futures trading. Filecoin IOU futures reached its peak value of more than \$9 in late June 2019, it is currently trading at \$3-\$5 range.

Filecoin IOU Futures

Source: CoinmarketCap



9.

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