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CONSIDERING CRYPTOCURRENCIES AS FUTURE POSSIBILITIES AGAINST FIAT CURRENCIES – AN EMPIRICAL STUDY

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Abstract: As society become increasingly digital, financial services providers are looking to offer customers the same services to which they're accustomed, but in a more efficient, secure, and cost effective way.

The origins of blockchain are a bit nebulous. A person or group of people known by the pseudonym Satoshi Nakomoto invented and released the tech in 2009 as a way to digitally and anonymously send payments between two parties without needing a third party to verify the transaction. It was initially designed to facilitate, authorize, and log the transfer of bitcoins and other cryptocurrencies.

Bitcoin users expect 94% of all bitcoins to be released by 2024. As the number moves toward the ceiling of 21 million, many expect the profits miners once made from the creation of new blocks to become so low that they will become negligible. But as more bitcoins enter circulation, transaction fees could rise and offset this.

Key Words: Blockchain, Cryptocurrency, Fiat Currency, Bitcoin, Business Process, Point Solutions, Forecast Period.

Block chain as technology

You've likely heard some of the following terms if you've paid attention to the world of finance: Cryptocurrency, Blockchain, Bitcoin, Bitcoin Cash, and Ethereum. But what do they mean? And why is cryptocurrency suddenly so hot?

First, we'll explain the blockchain basics.

As society become increasingly digital, financial services providers are looking to offer customers the same services to which they're accustomed, but in a more efficient, secure, and cost effective way.

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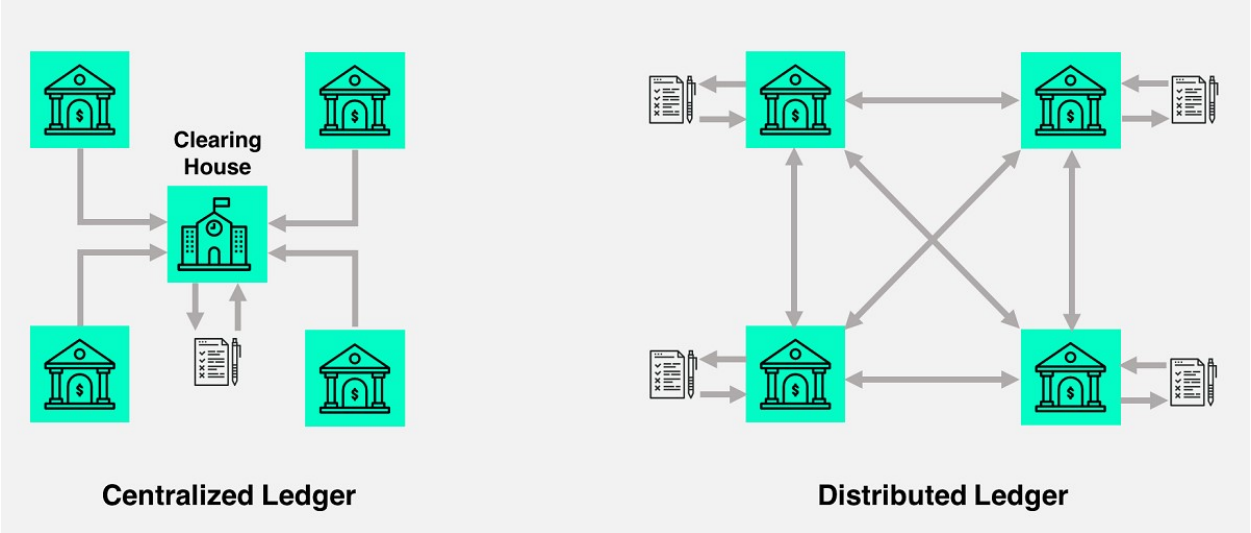
Enter blockchain technology.

The origins of blockchain are a bit nebulous. A person or group of people known by the pseudonym Satoshi Nakomoto invented and released the tech in 2009 as a way to digitally and anonymously send payments between two parties without needing a third party to verify the transaction. It was initially designed to facilitate, authorize, and log the transfer of bitcoins and other cryptocurrencies.



How does blockchain technology work?

Blockchain tech is actually rather easy to understand at its core. Essentially, it's a shared database populated with entries that must be confirmed and encrypted. Think of it as a kind of highly encrypted and verified shared Google Document, in which each entry in the sheet depends on a logical relationship to all its predecessors. Blockchain tech offers a way to securely and efficiently create a tamper-proof log of sensitive activity (anything from international money transfers to shareholder records).

Blockchain's conceptual framework and underlying code is useful for a variety of financial processes because of the potential it has to give companies a secure, digital alternative to banking processes that are typically bureaucratic, time-consuming, paper-heavy, and expensive.

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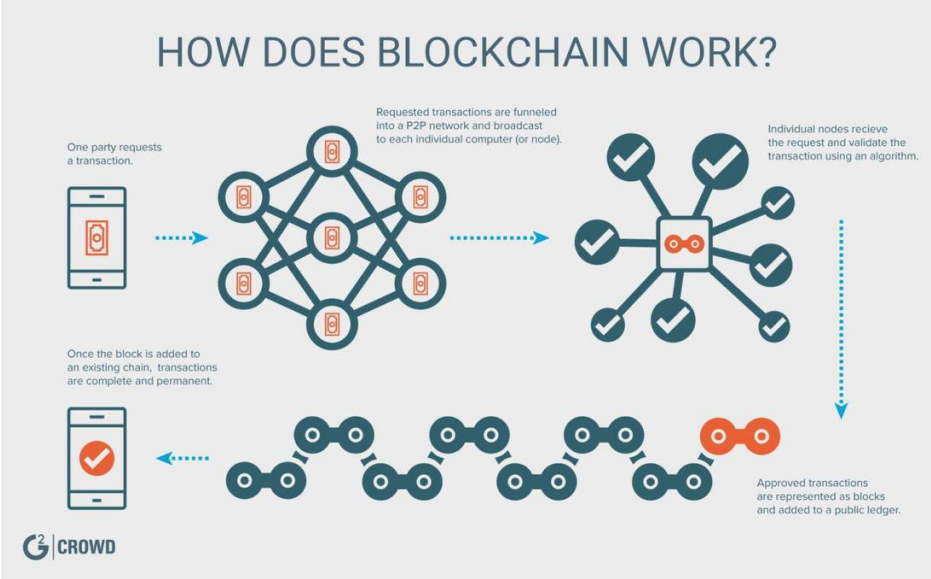

What are cryptocurrencies?

Cryptocurrencies are essentially just digital money, digital tools of exchange that use cryptography and the aforementioned blockchain technology to facilitate secure and anonymous transactions. There had been several iterations of cryptocurrency over the years, but Bitcoin truly thrust cryptocurrencies forward in the late 2000s. There are thousands of cryptocurrencies floating out on the market now, but Bitcoin is far and away the most popular.

How do you mine cryptocurrency?

Bitcoin, Litecoin, Ethereum, and other cryptocurrencies don't just fall out of the sky. Like any other form of money, it takes work to produce them. And that work comes in the form of mining.

But let's take a step back. Satoshi Nakamoto, the founder of Bitcoin, ensured that there would ever only be 21 million Bitcoins in existence. He (or they) reached that figure by calculating that people would discover, or "mine," a certain number of blocks of transactions each day.

Every four years, the number of Bitcoins released in relation to the previous cycle gets reduced by 50%, along with the reward to miners for discovering new blocks. At the moment, that reward is 12.5 Bitcoins. Therefore, the total number of Bitcoins in circulation will approach 21 million but never actually reach that figure. This means Bitcoin will never experience inflation. The downside here is that a hack or cyberattack could be a disaster because it could erase Bitcoin wallets with little hope of getting the value back.

As for mining Bitcoins, the process requires electrical energy. Miners solve complex mathematical problems, and the reward is more Bitcoins generated and awarded to

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them. Miners also verify transactions and prevent fraud, so more miners equals faster, more reliable, and more secure transactions.

Thanks to Satoshi Nakamoto's designs, Bitcoin mining becomes more difficult as more miners join the fray. In 2009, a miner could mine 200 Bitcoin in a matter of days. In 2014, it would take approximately 98 years to mine just one, according to 99Bitcoins.

Super powerful computers called Application Specific Integrated Circuit, or ASIC, were developed specifically to mine Bitcoins. But because so many miners have joined in the last few years, it remains difficult to mine loads. The solution is mining pools, groups of miners who band together and are paid relative to their share of the work.

Current & future uses of blockchain technology & cryptocurrency

Since its inception, Bitcoin has been rather volatile. But based on its recent boom — and a forecast by Snapchat's first investor, Jeremy Liew, that it would hit $500,000 by 2030 — and the prospect of grabbing a slice of the Bitcoin pie becomes far more attractive.

Bitcoin users expect 94% of all bitcoins to be released by 2024. As the number moves toward the ceiling of 21 million, many expect the profits miners once made from the creation of new blocks to become so low that they will become negligible. But as more bitcoins enter circulation, transaction fees could rise and offset this.

As for blockchain technology itself, it has numerous applications, from banking to the Internet of Things. It is expected that companies will flesh out their blockchain IoT solutions. Blockchain is a promising tool that will transform parts of the IoT and enable solutions that provide greater insight into assets, operations, and supply chains. It will

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also transform how health records and connected medical devices store and transmit data.

Blockchain won't be usable everywhere, but in many cases, it will be a part of the solution that makes the best use of the tools in the IoT arsenal. Blockchain can help to address particular problems, improve workflows, and reduce costs, which are the ultimate goals of any IoT project.

The overall **cryptocurrency market** is projected to reach USD 1.40 billion by 2024, at a CAGR of 6.18% during the forecast period. A cryptocurrency is a digital currency created and stored electronically in blockchain. It uses encryption techniques to control the creation of monetary units and to verify the transfer of funds. Hence, it is very secure. Cryptocurrency is a disruptive concept that is an alternative to fiat currency used in the present monetary system. Entrepreneurs, start-ups, and large as well as small and medium-sized enterprises (SMEs) are taking an interest in cryptocurrency and find it a revolutionary concept to counter transactional compliances. Owing to these factors, the ecosystem has attracted extensive venture funding, collaborations, and partnerships among cryptocurrency solutions vendors to provide end-to-end solutions. The base year considered for the study is 2017, and the forecast has been provided for the period from 2019 to 2024.

Market Dynamics

Drivers

- Transparency of distributed ledger technology
- High remittances in developing countries
- High cost of cross-border remittance
- Fluctuations in monetary regulations
- Growth in venture capital investments

Restraints

- Uncertain regulatory status
- Lack of awareness and technical understanding regarding cryptocurrency

Opportunities

- Significant growth opportunities in emerging and developed markets
- Acceptance of cryptocurrency across various industries

Challenges

- Concern regarding security, privacy, and control
- Technical challenges pertaining to scalability

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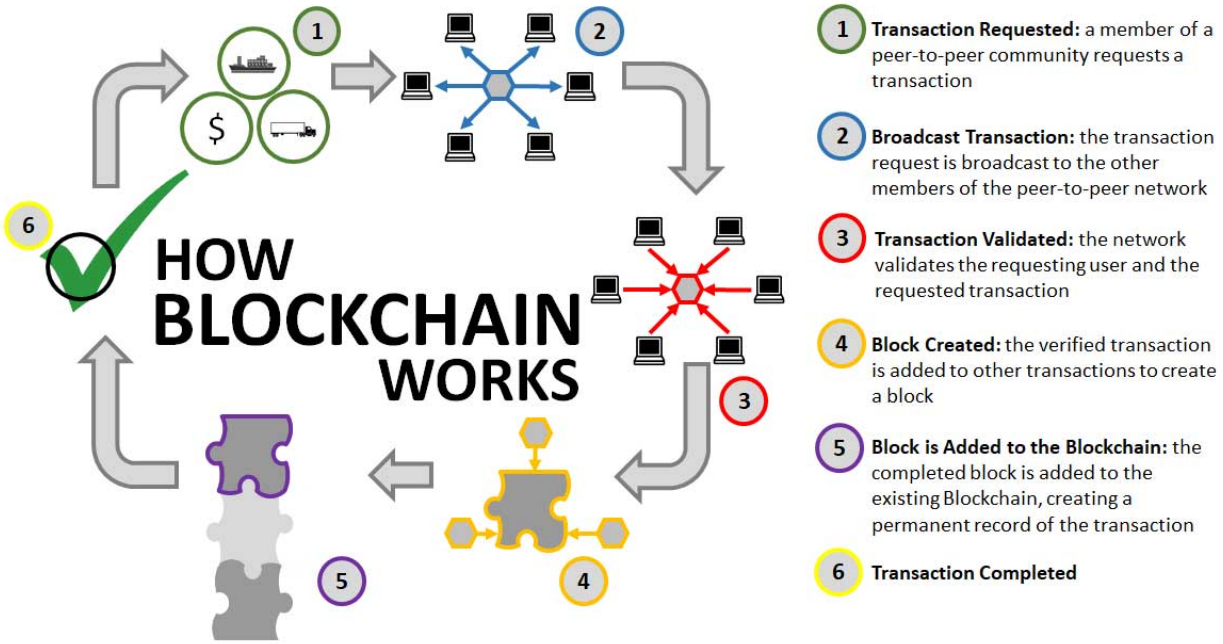
Use of cryptocurrency in payment application drives global cryptocurrency market

The market for payment through cryptocurrency is likely to register the highest growth during the forecast period. The payment through cryptocurrency has several advantages such as enhanced transactional security, protection from fraud, decentralized system, low fees, protection from consumer chargebacks, and quick international transfers. Moreover, a large number of players are investing in developing payment gateways and platform for the payment process of their currencies, thereby increasing adoption of cryptocurrency for the payment.



The following are the major objectives of the study.

- To describe and forecast the market, in terms of value, by offering, process, types, and application
- To describe and forecast the market, in terms of value, by region—North America, Europe, Asia Pacific (APAC), and Rest of the World (RoW)
- To provide detailed information regarding major factors influencing the market growth (drivers, restraints, opportunities, and challenges)
- To strategically analyze micromarkets with respect to individual growth trends, prospects, and contribution to the overall market
- To profile key players and comprehensively analyze their market position in terms of ranking and core competencies, along with detailing competitive landscape for market leaders
- To analyze the competitive developments such as joint ventures, mergers and acquisitions, product developments, and ongoing research and development (R&D) in the market

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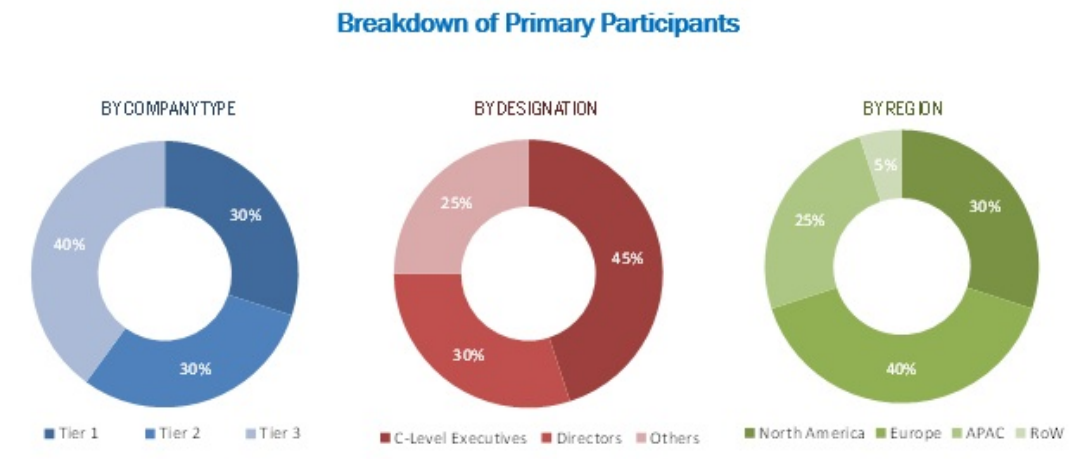
- To provide the illustrative segmentation, analysis, and projection of the main regional markets

During this research study, major players operating in the ***cryptocurrency market*** in various regions have been identified, and their offerings, regional presence have been analyzed through in-depth discussions. Top-down and bottom-up approaches have been used to determine the overall market size. Sizes of the other individual markets have been estimated using the percentage splits obtained through secondary sources such as Hoovers, Bloomberg BusinessWeek, and Factiva, along with primary respondents. The entire procedure includes the study of the annual and financial reports of the top market players and extensive interviews with industry experts such as CEOs, VPs, directors, and marketing executives for key insights (both qualitative and quantitative) pertaining to the market. The figure below shows the breakdown of the primaries on the basis of the company type, designation, and region considered during the research study.



Note: "Others" includes sales managers, marketing managers, and product managers. Tiers of the companies have been defined based on its total revenue as of 2017; tier 1 = >USD 100 million, tier 2 = USD 50–100 million, and tier 3 = <USD 50 million.

The value chain of the market includes research and product development; design commission; hardware and software provider; testing; integrators; final product; and end user. Key players exist in this value chain of the ***cryptocurrency market*** include Bitmain (China), NVIDIA (US), Xilinx (US), Intel (US), Advanced Micro Devices (US), Ripple Labs (US), Ethereum Foundation (Switzerland), Bitfury Group (Netherlands), Coinbase (US), BitGo (US), and Binance Holdings (China).

Major Market Developments

- In May 2016, Bitmain launched Antminer S9, which is the world's first commercially available Bitcoin miner based on a 16nm process chip.
- In December 2017, NVIDIA introduced TITAN V, the world's most powerful GPU for PC, driven by the world's most advanced GPU architecture, NVIDIA Volta.

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TITAN V excels at computational processing for scientific simulation. Its 21.1 billion transistors deliver 110 teraflops of raw horsepower, 9 times that of its predecessor, and extreme energy efficiency.

- In February 2018, AMD launched EPYC Embedded 3000 series processor and AMD Ryzen Embedded V1000 processor that deliver high performance, exceptional integration, and on-chip security.

Target Audience:

- Cryptocurrency companies
- Wallets companies
- Cryptocurrency exchanges
- Semiconductor and electronics manufacturers
- Software solutions providers companies
- Banking and finance organizations
- Ecommerce companies
- Research organizations and financial consulting companies
- Angel investors, venture capitalists, private equity firms, and start-up companies
- Market research companies

Report Scope

By Offering:

- Hardware
- Software

By Process:

- Mining
- Transaction

By Type

- Bitcoin
- Ethereum
- Bitcoin Cash
- Ripple
- Litecoin
- Dash
- Others

By Application:

- Trading
- Remittance

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- Payment

By Geography:

- North America
- Europe
- Asia Pacific (APAC)
- Rest of the World (RoW)

Critical questions which the report answers

- How is cryptocurrency influencing the transaction market?
- How are the hardware suppliers addressing the challenge of high computing power required for cryptocurrency mining?
- Which software is most used for cryptocurrency?

Available Customizations:

The given market data, and informatics available on the basis of the followings:

Geographic Analysis

- Further country-wise breakdown of the market for all 4 regions based on various applications

Company Information

- Detailed analysis and profiling of additional market players (Up to 5)

The overall cryptocurrency market is projected to reach USD 1.40 billion by 2024, at a CAGR of 6.18% during 2019–2024.

Based on process, the market has been segmented into mining and transaction. In the mining process, there is a greater requirement for hardware compared with the transaction process. Therefore, the market for hardware for mining process is larger than that for software. Furthermore, a miner can take part in this process with a small investment. In addition, the major hardware vendors such as NVIDIA, Intel, and AMD have started offering mining hardware. Moreover, many start-ups such as Bitfury, GateHub (UK), and Bitmine provide application-specific hardware solutions for cryptocurrency mining. The booming venture capital market for cryptocurrency-based start-ups is driving the market for the mining process.

In cryptocurrency, ASICs are gradually being preferred by miners. These ASIC machines mine at an extraordinary speed while consuming much less power than FPGA or GPU mining rigs. Several reputed companies, such as Bitmain, Avalon, and Innosilicon Technologies, offer highly efficient ASIC products. ASICs are cryptocurrency mining hardware created solely to solve cryptocurrency blocks. They have only minimal

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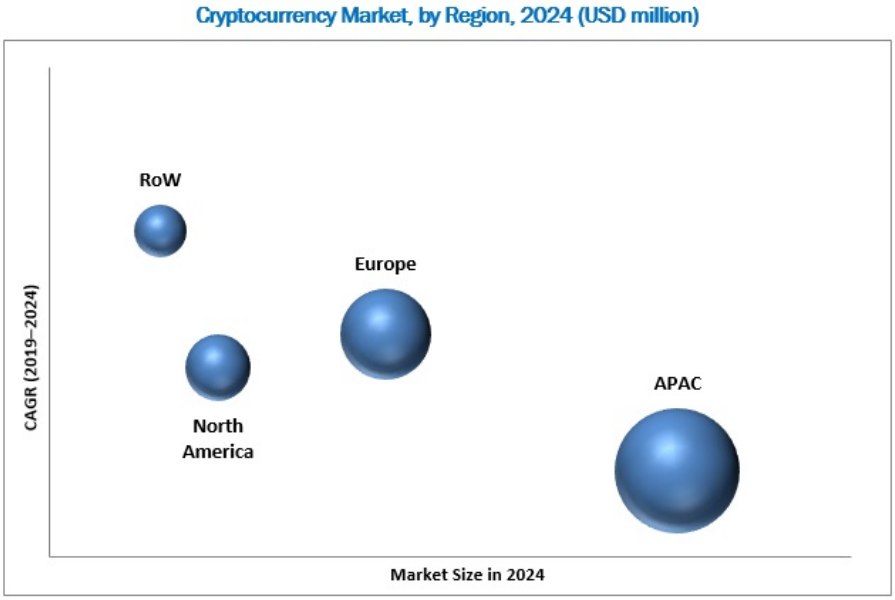
requirements for other computer applications. ASIC Bitcoin mining systems can solve Bitcoin blocks much quicker and use lesser electricity or power than other mining hardware, such as FPGAs.

The market for mining has been further segmented into solo mining, pool mining, and cloud mining. Pool mining is the most cost-effective process and gives the opportunity to earn more than other processes. Therefore, the pool mining segment is likely to register growth at the highest CAGR during the forecast period.

The market in APAC is expected to hold the largest market during the forecast period. APAC is notable for its high adoption of cryptocurrency. This is attributed to the low cost of electricity in China and early adoption of cryptocurrency in Japan. China is the largest market among all APAC countries. Owing to the low cost of electricity, ideal weather conditions, presence of big mining companies, such Bitmain, Canaan Creative CO., LTD, and Ebang Communication, and availability of venture capital funding, the market in APAC is expected to be the largest for cryptocurrency.



Cryptocurrency is used for various applications, such as trading, remittance, and payment.

Trading

Cryptocurrency trading involves exchanging fiat currency with crypto, as well as exchanging, buying, and selling of cryptocurrencies. It endures a few similarities of foreign exchange (forex) wherein fiat currencies from across the world are traded 24 hours a day. The number of cryptocurrencies has increased exponentially; currently, there are more than 1,500 cryptocurrencies available. A few of these coins can only be acquired using major cryptocurrencies such as Bitcoin or Ethereum. To contribute to

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initial coin offerings (ICOs), one needs to perform trades or use a blockchain company's services.

Remittance

Cryptocurrency has helped overcome a few key challenges related to interbank transaction and compliance-free cross-border remittance that financial systems had faced over the years. While interbank transactions often take days for clearance and settlements, cryptocurrency transactions can be accomplished within a much shorter time. Faster transaction and settlement can help consumers to transact more easily while eliminating the need for paying fees to intermediaries to streamline the processes. This can help banks save on labor-intensive procedures with their customers and exchanges.

Payment

A large number of players are investing in developing payment gateways and platform for the payment process of their currencies. When a customer makes a purchase using a cryptocurrency as payment, the transaction often goes through the payment gateway at a fixed exchange rate and automatically converts to traditionally recognized fiat currency so the merchant can avoid the volatility of the cryptocurrency markets. The payment through cryptocurrency has several advantages such as enhanced transactional security, protection from fraud, decentralized system, low fees, protection from consumer chargebacks, and quick international transfers.

Critical questions the report answers:

- Where will all these developments take the industry in the mid and long term?
- What are the upcoming industry applications for cryptocurrency?
- Will the exchanges continue to explore new avenues for cryptocurrency?

The lack of awareness and technical understanding regarding cryptocurrency is a major factor restraining the growth of the market. End users in most verticals do not know about the benefits of cryptocurrency and also lack understanding of how it works. This restricts the investment by companies in cryptocurrency as it is decentralized and has an uncertain regulatory status. As cryptocurrency is not widely adopted by investors, public, and entrepreneurs, its potential for transforming transaction processes has not yet been realized. Cryptocurrency uses cryptographic algorithms running across a vast network of independent computers. Therefore, sound technical knowledge about the related technology is crucial to explore the benefits of cryptocurrency in use cases.

Key players in the market include Bitmain (China), NVIDIA (US), Xilinx (US), Intel (US), Advanced Micro Devices (US), Ripple Labs (US), Ethereum Foundation (Switzerland), Bitfury Group (Netherlands), Coinbase (US), BitGo (US), and Binance

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Holdings (China). These players are increasingly undertaking partnerships and collaborations, and product launches to develop and introduce new products in the market.

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