**Technical Description of Cryptocurrency**

**Introduction**

The past decade raised the popularity of the financially technological domain, namely cryptocurrency, further among all streams of investors, investor business professionals, technology geeks, and every other interested party. Cryptocurrencies have presented an exciting alternative investment type to the ordinary ones banks provide. This technical description will demystify cryptocurrency by explaining the underlying concepts, how transactions are carried out, and the dotted lines between the benefits and the risks (Nakamoto; Narayanan et al.).

**Audience Analysis**

This technical description targets first-time cryptocurrency buyers, including investors and other ordinary technology enthusiasts. This document satisfies their curiosity and gives this novel finance domain clear and comprehensive coverage. **Figure 1** below shows the symbols of different types of cryptocurrencies available in the market. This description also provides its readers with facts on whether to join or trade in Cryptocurrencies. An absolute investor or individual who may not necessarily be an investor but one who desires to understand the operation and of cryptocurrencies, this technical description will be your ultimate guide.



**Figure 1**: Cryptocurrencies Currently Trading in the Market

**Unveiling the Basics**

1. ***What is Cryptocurrency?***

Cryptocurrencies are a form of digital or virtual currency managed and utilized securely using cryptography and heavy encryption (Nakamoto, 2008). Such cryptocurrencies are not like traditional fiat money like USD or EUROs, issued by governments; instead, cryptocurrencies function almost always on a decentralized network linked to blockchain technology (European Central Bank, 2012). Some of the most popular cryptocurrencies are evidenced by Bitcoin, Ethereum, and Litecoin (Nakamoto, 2008).

1. ***How do Cryptocurrencies Transactions Work?***

At the very heart of cryptocurrencies is blockchain technology. Blockchain refers to a public record of all the transactions that take place across a network of computers (Narayanan et al. 2016). Each block contains several transactions, and once a new block is attached to a chain, its information remains safe and unchangeable (Narayanan et al.).

1. **Transaction Initiation**: In this example, you want to send cryptocurrency to a friend. If you send it to their unique digital address, you can consider it an email address. With this, information is broadcast to the network of computers.
2. **Verification**: These computers, called miners, combine and solve a complex puzzle. It is a security check to authenticate the transaction (Antonopoulos, 2017).
3. **Reward and Confirmation**: the first miner who solves the puzzle is rewarded in a new form of cryptocurrency, and the verified transaction is entered into a block called the latest block in the chain. So, the cryptocurrency is credited to your friend's account.
4. ***Security and Cryptography:***

A pair of two types of cryptographic keys are used to protect your cryptocurrency. These are used in a cryptocurrency wallet to aid with the storage of cryptocurrency.

* **Public Key**: An address can be shared to deliver some amount of that specific cryptocurrency. Think of it like a bank account number, you may share it with others so they can send you cryptocurrency.
* **Private Key**: This is basically like your PIN or password. As such, it should be secured or kept secret. This is because it can be used to make a signature for commercial transactions, and that's how you access your cryptocurrency.

1. ***Pros and Cons:***

Cryptocurrencies make a good case for providing unique advantages that many new users are drawn to:

* **Lower Fees**: CoinDesk (2023) highlights a key advantage of cryptocurrencies: lower transaction fees compared to traditional banking systems. Say goodbye to those hefty bank transfer charges!
* **Financial freedom: Cryptocurrencies are free of the existence of a central bank when compared to conventional currencies in a decentralized network. That means one has more control over their finances and a potential speedup of transfers.**

But bear in mind some likely downsides before taking the plunge:

* **A Roller Coaster in Volatility**: Cryptocurrencies have some of the wildest price swings. Their value does not hold, as does a stable dollar; instead, it can change so drastically at any given time, posing a risky investment for the holder. Furthermore, there is limited regulation within cryptocurrency which is another contributing factor to price swings.
* **Security Concerns**: Losing your private key is like losing cash—it's gone forever. Cryptocurrencies heavily rely on safe key management, with any compromise possibly leading to stolen funds.
* **Environmental Footprint**: There has already been rising concern about the amount of energy used in some cryptocurrency mining, so it is wise to weigh the environmental impact of these choices.

If you understand both risks and benefits, you can make well-informed decisions about whether cryptocurrency is right for you.

1. ***Ethical Issues:***
2. **Illicit Activities: Cryptocurrencies have been used to support illegal activities due to their anonymity. Effective measures to prevent their misapplication need to be established.**
3. **Financial Exclusion: Much as cryptocurrencies increase financial inclusion, they also risk excluding those not technologically included.**
4. **Environmental Concerns: The amount of energy consumption that is seen to be high in carrying out the mining of these cryptocurrencies is, therefore, another area requiring discussion in terms of sustainability and other alternative methods.**

**Conclusion**

Cryptocurrency represents a remarkable technological innovation with the potential to transform financial systems and various industries. Its decentralized nature offers greater financial freedom and lower transaction costs compared to traditional banking systems, making it an attractive alternative. However, users must be aware of the challenges and risks associated with cryptocurrencies, such as investment volatility and security issues related to the loss of private keys. Additionally, environmental concerns surrounding cryptocurrency mining and the ethical implications of its anonymous nature require ongoing discussion and regulatory oversight to ensure responsible use.

Despite these challenges, cryptocurrencies hold the promise of promoting financial inclusion, though they may exclude those without access to necessary technology. To harness the benefits of cryptocurrency while mitigating its risks, individuals and organizations must be well-informed about its applications, potential challenges, and ethical considerations. By approaching this new financial instrument with an open mind and a comprehensive understanding, we can work towards a more inclusive and efficient financial system that leverages the advantages of cryptocurrency while addressing its drawbacks.

**Glossary**

This glossary defines terms you found in the body to assist your knowledge and understanding of the subject of cryptocurrency.

1. **Cryptocurrency**: Virtually encrypted money, existing only in digital form. In other words, it is a type of digital money that you can send or receive over the Internet.
2. **Blockchain**: A distributed public ledger of all cryptocurrency transactions that have been executed. It is like a massive record book that is public for everyone and, at the same time, tamperproof.
3. **Decentralized**: That is, no entity, say a bank or government, can control it. With many computers processing and managing a cryptocurrency, it is less central in authority.
4. **Digital Address**: A form of unique identifier used to receive cryptocurrencies—think of it like an email address, but for cryptocurrency transactions.
5. **Encryption**: The scrambling of information in such a way that only a unique key can unscramble it, so your cryptocurrency transactions are secure.
6. **Mining**: Verifying cryptocurrency transactions from one user to another and reaching an agreement by adding blocks to the chain. Miners are set in competition to solve complex puzzles, and the one who does it first is rewarded with new cryptocurrency. Imagine that mining is a sort of security check where you would receive a reward for successfully checking. **One may incur a typical service charge with a cryptocurrency network transaction**.
7. **Volatility** - The tendency of the price of an asset to change dramatically. The value of cryptocurrencies can increase or decrease very quickly, thus making them a risky investment.

This glossary will help to clarify some of the problematic vocabulary for you. Keep it by your side as you get deeply involved into the world of cryptocurrency!

**References**

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