



Digital Money

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Abstract The development of computer network technology has facilitated electronic commerce and payment schemes. Digital money carries high hopes for economic development. It has the potential of replacing bank currency and other forms of exchange. It is network based and easy to use. This paper presents an introduction on digital money.

Keywords Digital money, electronic money (e-money), mobile money, computer money, e-cash

Introduction

We all like money and find it easy to spend. Money is a financial asset that carries present buying power over into the future. Money has evolved over the years like other tools of civilization. It is used as a medium of exchange and a convenient way to store value for future use. Governments create money and maintain monopoly over it. While paper currency still has some advantages in some situations, its role has diminished. The era of electronic or digital money has come. The world is getting used to doing business in cyberspace [1]. Digital money is fast becoming the currency of a new era since it offers great promise and is convenient for consumers. The future of electronic commerce greatly depends on digital currency.

Forms of Digital Money

Digital currency is an Internet-based medium of exchange. It is broadly regarded as any means of payment that exists in electronic form. In other words, digital money is an electronic replacement of paper money. It allows for borderless transfer of ownership. Anyone can issue a digital currency. Digital money, also known as electronic money, is exchanged using the Internet, smartphones, or credit cards, eliminating the need to visit a bank. It becomes physical money when we withdraw cash at an automated teller machine (ATM). It has never been easier to spend money.

Digital currency is issued by banks and other financial institutions to replace bank notes. This allows people to pay money over the Internet. This affects money supply and accelerates money circulation. It can be used within a national or international. Digital money is a fundamental element in electronic commerce. It allows credit and debit transactions, with encryption technology to ensure security. Examples of digital money include bank deposits, electronic funds transfer, direct deposit, and money spent with credit and debit cards. Companies that use digital money include Western Union and KlickEx.

Bitcoin, introduced in 2009, is the most widely used digital currency. It was designed to take power out of central bankers and empower people. It is based on cryptographic algorithms. Digital money and user are connected by public key cryptography. There are roughly 12 million Bitcoins in circulation, with each valuing about \$460. Another form of digital currency is Dogecoin. It was created to reach a broader market than Bitcoin.

Features of Digital Money

Digital money has the following desirable features that paper money lacks [2-4]:



Independence: Unlike paper money, digital money is sent through a computer network. Its security must not depend on its existence on a particular location. It must be portable.

Safety: Allowing sensitive financial information to be transferred in open networks runs the risk of being intercepted by an authorized user. Forgery and illegal transactions are prohibited.

Privacy: The privacy of users must be protected and their records of transaction must not be identified. Digital money should be anonymous or non-traceable. Client anonymity is guaranteed by communicating through an anonymous communication channel.

Digital signatures: These have been invented as an effective equivalent for written signatures. A digital signature ensures the certainty of the one who sends a digitally signed message.

Digital currency has the advantages of [5]: fraud deference, flexibility, cost savings, speed, and proactivity. It has cut down the bank staff and the overhead costs of the bank.

Challenges

Digital currency poses some challenges for central banks and financial regulators. The biggest problem with digital money is security. Security issues slow down the implementation of electronic banking. Digital currency also raises regulatory, law enforcement, and economic concerns. Fear, theft, and illegal activities are still associated with digital currency. Digital currency has been blamed for abolishing the face-to-face interactions between banks and their customers.

Digital money may be a real bonanza for money launderers. Money laundering is the process whereby monies generated through illegal activities are diverted to less productive activities so as to conceal the origins [6]. It conceals the source of money and introduces it into legitimate commerce. Drug lords support money laundering activities. By introducing some policies, the IMF has attempted to curb money laundering activities.

There is no standardization of digital money. Appropriate measures should be taken by the government to counter illegal usage of digital money. Efforts must be made to prevent illegal remittance and money laundering. To discourage the fraudulent activity of counterfeiting, all cyberdollars are registered.

Governments find it difficult to control digital money. They monitor the digital currency through their central banks and financial ministers. The Federal Reserve, the US central bank, is closely watching this activity. To avoid premature regulation, the governments have not started to regulate digital money but have started to create an atmosphere of trust and accountability. Nations do not want to give up their sovereignty by allowing transactions across borders. National policy makers must come with rules that can be universally trusted and accessible.

Conclusion

Digital money is an idea whose time has come. It is the future of shopping. It has the potential to provide substantial economic and social benefits. It offers added convenience to consumers. It drastically reduces the cost and hassle of moving money around the world. However, the development of digital money has challenged the traditional monetary policy. The potential of digital money to move freely across international borders has alarmed central banks and other financial institutions. They are concerned that digital money could fuel money laundering and fraud and lead to a cashless society. More information about digital money can be found in [7].

References

- [1]. B. J. Cohen, "Electronic money: new day or false dawn?" *Review of International Political Economy*, vol. 8, no. 2, 2001, pp. 197-225.
- [2]. K. Hirotsugu et al., "An electronic money system as substitute for banknotes," *Proceedings of the 10th Annual International Symposium on Applications and the Internet*, 2010, pp. 316-319.
- [3]. V. Coates, "Digital money a view from the USA," *Interdisciplinary Science Reviews*, vol. 23, no. 4, 1998, pp. 313-315.
- [4]. D. C. Lynch and L. Lundquist, *Digital Money: The New Era of Internet Commerce*. New York: John Wiley & Sons, 1996, pp. 108,109.
- [5]. S. Warigon, "Information security and audit implications of electronic money," *EDPACS*, vol. 26, no. 7, 1999, pp. 12-15.



- [6]. S. Vaithilingam, M. Nair, and T. Thiyagarajan, "Managing money laundering in a digital economy," *Journal of Asia-Pacific Business*, vol. 16, no. 1, 2015, pp. 44-65.
- [7]. R. Guttmann, *Cybercash: The Coming Era of Electronic Money*. Basingstoke: Palgrave MacMillan, 2003.

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