

Cryptocurrencies: development and impact on the world economy

Criptomonedas: desarrollo e impacto en la economía mundial

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ABSTRACT

Cryptocurrencies, also known as cryptocurrencies, are a new form of payment, similar to conventional money, but they operate through the Internet and facilitate buying and selling transactions in a faster and more efficient way. Over the years several types of cryptocurrencies similar to bitcoin have been developed, but with the advancement of technology others have emerged that have different objectives and operation, currently they are well known as a source of investment, as a business opportunity and forms of payment. The objective of this research is to know how cryptocurrencies have developed over the years and how they affect or benefit the world economy. The concepts and information that were analyzed and studied for the realization of the article were the definitions, history, advantages, disadvantages, characteristics among other variables in order to meet the objective and have a clearer idea of what cryptocurrencies are and what is their function and impact on the world economy. The methodology used in

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the research was documentary and bibliographic, which began with a brainstorming to be able to raise the keywords that would be necessary to search for scientific articles on the Google Scholar platform, then upload them to Google Drive to finally cite the articles with the help of the Mendeley application.

Keywords: cryptocurrencies, digital economy, economic development, world economy.

RESUMEN

Las criptomonedas conocidas también como criptodivisas son una nueva forma de pago, parecido al dinero convencional, pero que operan por medio de internet y facilitan las transacciones de compra y venta de manera más rápida y eficaz. Al pasar de los años se han desarrollado varios tipos de criptomonedas parecidas al bitc oin, pero que con el avance de la tecnolog a han surgido otras que tienen diferentes objetivos y operaci n, actualmente son muy conocidas como fuente de inversi n, como oportunidad de negocio y formas de pago. El objetivo de la presente investigaci n es conocer como las criptomonedas se han desarrollado al pasar de los a os y de qu  manera afectan o benefician a la econom a mundial. Los conceptos e informaci n que se analizaron y estudiaron para la realizaci n del art culo fueron las definiciones, la historia, las ventajas, desventajas, caracter sticas entre otras variables para poder cumplir con el objetivo y tener una idea m s clara de lo que son las criptomonedas y cu l es su funci n e impacto en la econom a mundial. La metodolog a que se utiliz  en la investigaci n fue de manera documental y bibliogr fica, que se inici  con una lluvia de ideas para poder plantear las palabras claves que ser an necesarias para buscar los art culos cient ficos en la plataforma de Google Acad mico, posteriormente subirlos a Google Drive para finalmente citar los art culo con la ayuda de la aplicaci n Mendeley.

Palabras clave: criptomonedas, econom a digital, desarrollo econ mico, econom a mundial.

INTRODUCTION

Technological development has contributed decisively to the transformation of the economy and the progress of humanity. Today we are witnessing another revolution whose origin has been the invention of computers, the development of software, interconnection on a global scale and its massive use since the beginning of the 21st century. This has increased the possibilities of creating new products and services, and has opened the door to far-reaching transformations that may even make it possible to speak of a new economy that coexists with the current one, or that may even replace it in the future. (Dom nguez & Garc a, 2019).

As a result of the distrust generated in the financial system after the fall of Lehman Brothers in 2008, the technological guru, Satoshi Nakamoto presents a tool that will

allow online peer-to-peer payments to be sent from one party to another without the intervention of any financial institution. This system is none other than Bitcoin, the first cryptocurrency that is able to create a trusted environment in which transfers of value occur between peers without the need for the involvement of a third party, which is usually a financial institution (Ibid). (Sempere & Moreno, 2021).

Cryptocurrencies are a payment system that was created several years ago and currently have become very important in the economic sphere since it is even possible to invest in them and increase capital. In addition, they have facilitated commercial transactions since you only need a cell phone to be able to cancel any product, however, in some countries they still do not allow the use of cryptocurrencies. The purpose of this article is to learn how cryptocurrencies have developed over the years and how they affect or benefit the world economy.

Cryptocurrencies or digital currencies differ from traditional currency in that they are not created or controlled by countries. This protocol or system establishes a very particular set of rules that guarantees the integrity and generates high levels of confidence that the information exchanged between these billions of computers passes between one and another user without passing through third parties or between people, this particularity caused attraction by specialists in the area of computer science, spreading rapidly in the execution of various businesses, followers of high levels of privacy, activists, theorists, governments, and even financial institutions. (Navas et al., 2020).

The first data ever known about cryptocurrencies dates back to the 1980s with the so-called cypherpunk movement, which advocated the use of cryptography as a tool for social and political change. It was not until 2009 when, driven by the liquidity crisis in the financial markets, an unidentified person or group of people, under the pseudonym of Satoshi Nakamoto, published an article on an internet forum entitled bitcoin: a peer-to-peer electronic money system, a peer-to-peer (P2P) electronic money system to avoid double spending, i.e. a person paying twice for the same purchase. (I. López & Medina, 2020).

The first cryptocurrency that was successfully created was bitcoin. It appeared between 2008 and 2009 in the context of the international financial crisis and the global recession caused by the collapse of subprime mortgages in the United States. It was not until May 2010, when bitcoin began to acquire value, when a user bought two pizzas for two thousand bitcoins. Since the creation of bitcoin, a numerous variety of cryptocurrencies have been created with different characteristics and protocols such as litecoin, ether, ripple, dogecoin, iota. Bitcoin, at the end of 2017 reached a value of more than 18 thousand dollars when it was launched on the futures market on Wall Street (Berdejo, 2019).

Likewise, it should be emphasized that Bitcoins and cryptocurrencies in general, function economically as a means of payment since through them goods and services can be acquired in establishments and/or suppliers that have accepted to receive payments in said virtual currency. Likewise, their value is highly volatile, since they are not backed by

any State or private entity, and they have been used speculatively by many investors in recent years. It is relevant to add that Bitcoin mining requires a significant investment in equipment and electricity to support the work of the miners' computers. (L. López, 2019).

Bitcoin is a cryptocurrency, a digital currency founded on cryptography, it is one of the numerous digital currencies that exist, consisting of a type of virtual currency, which is created and guarded electronically, without support on paper or metal. It works through block chains, which are a record of digital transactions, which is shared by many people, and the information transmitted between them cannot be erased or altered, so that a public database is created, which is highly secure, being verified through the so-called miners, which are the computers that are responsible for identifying and verifying transactions. (Salmerón, 2017).

Leticoin (LTC) was created by Charlie Lee and is complementary to Btc starts in 2011, it was intended to be complementary to Btc, but due to changes to its platform it turned out to be totally independent, to make a comparison, it is called Btc in the network gold standard 2.0 and Ltc, silver 2.0; its initial purpose was the reduction of the time in the transactions to confirm them and that any person could participate in this mining, because it has the following differentiated characteristics in relation to the Btc: participation in the data mining, it is much easier to enter in it than the Btc, time for transactions: 2.5 min. (González & Guardiola, 2019).

Ethereum, was developed by Vitalik Buterin. Its objective was that through its platform it would be possible to operate decentralized and collaborative applications. The price of its cryptocurrency has increased notoriously despite its short period of time in the market. Ripple is considered a digital asset oriented to bank transfers and a more efficient settlement option for financial institutions and liquidity providers seeking a global reach, because the cost of its transactions is lower than that of other cryptocurrencies. Tether is a cryptocurrency with a value intended to reflect the value of the U.S. dollar. (López et al., 2020).

One of the great advantages is that, in order to carry out transactions, the necessary technology is accessible and relatively inexpensive. Internet access via cell phones in most cases is sufficient for a cryptocurrency transaction. This ease of exchange allows the receipt of micro-payments by those who would otherwise not have access to liquidity offering the unbanked an opportunity for economic growth. Governments, although slow to recognize the importance of Bitcoin, are now considering both regulation and taxation of this cryptocurrency. (Barrutia et al., 2019).

It should be noted that what makes cryptocurrencies and blockchain so attractive, at the same time can bring certain dangers. By allowing transactions to be carried out globally at low costs, quickly and with the guarantee of security and partial anonymity, they have proven to be a useful tool for criminal purposes, used mainly by cybercriminal networks and smaller-scale terrorist groups, to finance terrorism and favor money laundering, generating particular concern in the international community. They constitute an important new vehicle for money laundering and terrorist financing. (Videau, 2018).

The operation of Bitcoin and all the cryptocurrencies that emulate it is tremendously complex. i) The encrypted transactions that maintain the history of each coin transacted and prevent counterfeiting; ii) the protocol that validates and maintains the chronological record of the transactions and avoids the problem of double payment or double simultaneous use of the same coin; and iii) the peer-to-peer communications network that stores the copies of the transactions and the previous record in a decentralized manner. Cryptocurrencies largely solve the problems of exchange rate dependence in the demand for virtual goods. (Díez, 2019).

Banking institutions, which act in contact with the national financial system, are already adopting technologies that underlie or are linked to cryptocurrencies. This fact must be related to the fact that we are already beginning to live in a time in which people, more and more every day, are disassociating themselves from physical money. This phenomenon was already being perceived, so much so that several digital banks emerged in the markets, once it was noticed that people, especially young people, do not need to go to the agencies to perform their financial transactions, and more and more frequently, they do not use physical money to make them happen. (Dias et al., 2019).

Finance has evolved to a centralized functional model, characterized by bank intermediation, where operations are generally controlled by a central bank that issues and insures operations with recognized currencies. This intermediation involves costs ranging from 7% to 20% in many cases and average delay time of 3 days. Cryptocurrencies could not only reduce the delay time of transactions, but also end the centralization of transactions, pre-distributing wealth and even democratizing it by allowing each individual to receive and manage their wealth and products. (Ramos et al., 2017).

Blockchain, or blockchain, is the technology in which cryptocurrencies are housed; it is a database that keeps the complete history of transactions made. Its birth took place with the most well-known cryptocurrency, Bitcoin. Blockchain is a revolutionary alternative for sending data. Its nature and characteristics have interested States and supranational entities, as in the case of the European Union, with the creation of the Blockchain Observatory (European Commission, February 1, 2018), or China, which has recently invested heavily in researching this technology for uses beyond the economic one (D. Pérez, 2020).

It is controlled and monitored by several sources simultaneously, its characteristics being distributed, transparent, encrypted and immutable. This disruption has great potential even to replace financial institutions. Among its potential applications are microfinance, remittances and international payments, digital records, tracking, contracts and donations. Innovations evolve but the real change is in the revolution, i.e. in the disruption, which has won new customers, which has shown new ways of doing business and transforming business by making it more accessible and of higher quality. (Acosta et al., 2018).

When making an investment, the investor's profile must be considered, i.e. a greater or lesser aversion to risk. Therefore, three variables should be considered: degree of risk,

use of the instrument and the waiting time to return the investment. The diversity of existing investment instruments must be taken into account. Cryptocurrencies are a trend and are becoming an attractive market, especially for people without financial knowledge; however, it should not be forgotten that these instruments do not have the backing of a central bank, they are rather a speculation instrument. (Catache et al., 2020). Cryptocurrency, the use of which has made it possible to acquire goods and services without intermediaries, minimum transaction times and the possibility of making financial investments, one of the best known being Bitcoin. The operation through Bitcoin contemplates two clear functions: on the one hand, it is a means of payment, since it is possible to acquire goods or services, in affiliated commercial sites or part of the same currency payment system; and, on the other hand, it is a means of investment, because the price varies according to market behavior, being the Blockchain technology used mainly in financial transactions the mechanism that allows the use of the Bitcoin (Brito, 2021).

Cryptocurrencies are advancing by leaps and bounds, since in less than eight years a large number of them have been created and are already being used in different social, economic, political and administrative environments around the world. The purpose of their use is to enable different economic transactions between companies in the industry and providers of various services that support development. In this way, to achieve benefits in cost reduction, process efficiency and the creation of constant information to choose new markets, among others, allowing to generate jobs, which approve to reduce existing poverty, improving their quality of life. (Sánchez & Terán, 2018).

Today's world is marked by a transformation process that seeks new opportunities for development and innovation through technology, where daily activities of the economy use cryptocurrencies as tools for various purposes, being supporters of the mutation and evolution of some markets. Technological progress and the economic crisis that countries are experiencing have led to transform the financial sector in order to meet the needs of entrepreneurs. A clear example is Venezuela, which resorted to the cryptocurrency where they made an alternative means of payment without intermediaries to reverse the situation of the country. (Cabeza et al., 2020).

The use of cryptocurrencies and their influence on the world economy can be seen that every day we are closer to the frequent use of payments through digital currencies, that the era of the Internet and technology are like an avalanche that ends up wrapping us all and that we are facing a moment of global explosion where the use of cryptocurrencies is very close to being part of our daily lives, despite the little that is still known about them are several establishments that today already accept payments with Bitcoin shortening banking transactions and allowing the exchange between their own users.... (Carrera et al., 2020).

The value of bitcoin, Ethereum or litecoin and other fiduciary cryptocurrencies that operate as a medium of exchange is determined, in effect, by the fluctuations caused in the market, depending on their supply and demand. The best known virtual fiat currencies (bitcoin and Ethereum) have been used for speculative purposes. Speculation

has been marking the itinerary of these and many other cryptocurrencies, however, the differentiating note with respect to other cryptocurrencies (pound, truecoin, tether, DAI or G-Coin) that have been appearing on the digital monetary scene, avoiding or minimizing speculation, is that they have been used for speculative purposes, and that they have been used for speculative purposes. (Hernández & García, 2021).

In addition to the above, the position of many companies is ratified when recognizing Bitcoin as a means of payment and in general their acceptance for the use of cryptocurrencies in transactions, events that are becoming increasingly recurrent in the eyes of the globalizing processes that are being generated in the financial and economic sectors in general, which leads to experience by economic actors deep transformations, driven in turn by social, political and cultural changes of consumers, wanting to change such a priority piece as the currency. (Barradas, 2020).

MATERIALS AND METHODS

This paper entitled "Cryptocurrencies: Development and Impact on the World Economy" was developed by brainstorming ideas related to the variables of economics, then proceeded to determine the keywords to carry out the research, which are: cryptocurrencies, digital economy, economic development and world economy. Once the keywords were established, we began to investigate the topic in the Google Scholar search engine, which is a tool that helps us to search for academic and scientific literature.

The research continued with the search for 20 scientific articles that were uploaded to the Google Drive platform, in the database that would be used to store the information for the article, then we proceeded to analyze the documents to be sure that they were useful and if not, we continued searching for information and finally we used the Mendeley application to make the bibliographic citations of the respective articles. In this work we used bibliographic, documentary and explanatory research, which helped us to obtain a clearer and more precise vision of the subject.

The article to be developed, seeks to know how cryptocurrencies have developed and grown over time and how they have influenced the economy of all countries, how they have contributed and what are the negative effects of these digital currencies, as they are currently a boom in the world economy as a new form of payment and investment. In addition, with all the compilation, the behavior of the variables of the case was analyzed, the main characteristics, the study approach, dimensions of the subject were explained, supporting the knowledge already obtained. Finally, the research and identification of its present problems were successfully carried out.

RESULTS

Measuring the economic impact of cryptocurrencies can be difficult. Today, some 500 different cryptocurrencies have been introduced in the market, many of which are practically identical copies of *bitcoin* 18, that is: the technical and systematic principles on which they are based, their channels of promotion and expansion, their communication

strategy and, sometimes, even their "brand" image or logo closely mimic those of *bitcoin*. This multiplicity of cryptocurrencies makes it difficult to quantitatively assess the impact of the phenomenon, especially since some of them try to compete with *bitcoin* by differing in essential points (X. Pérez, 2017).

The purchase of cryptocurrencies itself can be an excellent way to launder money. The subject interested in acquiring any of them offers fiat money in exchange for receiving cryptocurrency. The very placement of this can be a laundering operation (remembering, as I said above, that the second phase of laundering, the cover-up, is either unnecessary as it is implicit in the opacity of the bitcoin blockchain, or occurs with the use of mixers). (Navarro, 2019).

So far, there have been several supervisory authorities (ECB, ESMA, SEC, CNMV, Bank of Spain) that have warned of the risks inherent to investing in this type of assets (8). For example, the location of entities involved in the issuance, custody and trading of cryptocurrencies (exchange platforms, issuers of initial offerings of cryptocurrencies (ICOs), digital wallet providers, etc.) in countries other than Spain may exclude them from the scope of competence of the Spanish supervisory authorities, being consequently subject to the legislation of the country in question. (Puente, 2018).

Fair Coin is a blockchain solution developed in the solidarity economy, which emerged in 2014, after a strong development of the project from a *fork* of *Bitcoin*. As it reads on the FairCoop page, FairCoin is an ethical digital currency, governed by the values of the FairCoop ecosystem and supported by a rapidly growing global cooperative movement. It is decentralized, just like any other cryptocurrency, but, at the same time, it implements radical innovations that make it unique in terms of green operation, stable value growth, ethical trading, and opportunities for savings and financing (Mance, 2019). They are those for-profit legal entities or natural persons exercising as traders and with commercial establishments registered in the Chamber of Commerce, whose corporate purpose is the commercialization, administration or trading of cryptocurrencies, with prior authorization issued by the Ministry of Information Technologies and Communications. This allows concluding the definition of traders as those subjects, natural or legal, that operate cryptocurrencies with an economic purpose or seek to generate a profit in a professional manner. It will depend, then, on the classification of these users according to the commercial purpose of the use of such goods. (Zambrano et al., 2019).

Cryptocurrencies have the ability to be used as a means of payment and store of value, without the intermediation of a regulatory body that authorizes the transactions to be carried out. According to Rangel, in the market we can find different denominations of cryptocurrencies such as Bitcoin, Ethereum, Litecoin, Ripple, Dogecoin, Dash, Stablecoin, Petro, being bitcoin the virtual currency par excellence. Thanks to their potential to reduce the costs of sending and storing money, cryptocurrencies can be a direct path to financial inclusion. The bitcoin has become an investment and speculation asset. (Espinoza et al., 2021).

The interest in cryptocurrencies as an investment and speculation mechanism, from mining to buying with fiat money has allowed reaching historical highs both in the number of coins, this is close to 2000, to their global market value that measured in US dollars reaches its historical maximum of \$828 billion on January 7, 2018, when a year earlier this figure stood at \$17 billion. With a February cutoff, after a sharp price drop, the market value of cryptocurrencies falls to \$384.6 billion US dollars, while at the end of 2018 this figure is bordering \$200 billion, equivalent to a decline of more than 60% (Jiménez & Santana, 2018).

The nature of cryptocurrencies is different because, while most digital assets lack physical existence, unlike other intangible assets, cryptocurrencies are traded on stock markets, are designed to be accepted as a means of payment for goods and services, and are subject to a significant level of volatility. Pereyra believes that "a fair value valuation model, where both realized and unrealized gains and/or losses are reflected in the income statement, best represents the economic nature of holding cryptocurrencies." (Cóccaro, 2021).

One of the first and perhaps most serious problems of cryptocurrencies is that they could enable tax evasion (Roman, 2015). This would be a consequence of one of the main characteristics that these assets generally have: anonymity. Transfers and transfers of cryptocurrencies do not require the identity of the subjects issuing or receiving coins. Although it is true that there is a record in the blockchain network of the addresses of origin and destination of all the transfers that the bitcoin in question has been subject to (in the specific case of this currency), it should be remembered that what is recorded are the addresses or accounts, made up of a set of alphanumeric characters (Ossandón, 2019).

The cryptocurrency market is similar to the foreign exchange market - which is one in which participants around the world buy and sell different currencies in order to facilitate international trade - and stocks in the sense that they are traded in the market where the above-mentioned forces of supply and demand interact. Moreover, they face the same dilemmas and require techniques to reduce uncertainty and support the decision process described above (which ones, how much and when). Again, forecasting plays an important role, since the variables used are virtually the same (maximum value, minimum value, volume). (Regal et al., 2019).

The supposedly inherent advantage of cryptocurrencies is that they make it possible to organize a network of decentralized exchanges that does not require intermediaries in the payment system and whose governance is horizontal and egalitarian. The verification of transactions is carried out by the members themselves, is developed in cryptography, and all exchanges made are recorded in a register that is public and stored on the network's computers. This is what, according to Desmedt and Lakomski-Daguerre, makes the register infallible, "since any attempt to manipulate transactions results in a computer block that is incompatible with the previous and next one." (Orzi et al., 2020). The emergence of cryptocurrencies has meant the appearance of what we would call an asset and which has currency characteristics. However, its economic nature is not clear

and what it is has not been defined. Despite the above, there is a significant market for cryptocurrencies, especially Bitcoin, and it is a great challenge to analyze and statistically model its dependence on Ripple and Ether. The factors involved in Bitcoin price formation are radically different from those of conventional assets. These factors include network news, internet searches, Kristoufek, google trends, among others. (Aragón & Núñez, 2019).

As a consequence of the current scenario, despite fighting for customer protection, transparency and supervision of the system, the solidity of fiat currencies guaranteed by central banks begins to be questioned and all this provides the opportunity for the rise of digital currencies, such as bitcoin, ethereum, ripple or litecoin, among others. A key element in a digital currency is mainly to be able to prove and guarantee that its use is unique and exclusive. That is, it must guarantee a trust system, similar to an intermediary, that verifies whether or not it has already been spent. (Ruiz, 2019).

Bitcoin can be seen as a societal response to the failures of the global financial market. As Bitcoin is money in a new form, an understanding of the nature of money and how it has manifested itself in various realities is a useful starting point. Polanyi was the first prominent economist to frame money as a social convention, as was his daughter Kari who clearly states that money is a social convention. Like language, human beings in almost every place and time reproduce money in innumerable forms, often in the absence of formal authorities. (Marshall, 2018).

In the real economy there is a causal interaction between different variables that evolve societies. In the case of Bitcoin, economic instability can have a multiplier effect on financial markets, as both investors and ordinary citizens lose faith in fiat currency and look for alternatives. Other economic factors that can disrupt the cryptocurrency market include currency devaluation, inflation, and confidence in issuers. The cryptomarket is still in its infancy stage, and strong volatility could have a negative impact on the recognition and value of cryptocurrencies as a means of payment (Palma, 2020). In the absence of legal recognition, bitcoin is considered as a kind of private money, which will be taken into account for certain purposes, depending on the regulation of each country. Thus, in Germany it is admitted as a "financial instrument operating as private money", qualifying as a "unit of account", so that a tax can be levied on the profits generated by capital in bitcoins or by their purchase and sale in exchange for euros. In the United Kingdom, VAT is required to be declared on transactions carried out by traders using bitcoins as a currency of exchange. (Pacheco, 2016).

Economies in crisis, such as Venezuela and Argentina, where inflation has exceeded exorbitant limits, are some countries where bitcoin can serve as a refuge of value. In Venezuela, according to a report, between January and September 2020 inflation was 1433.58%. As a consequence, many people have decided to transform their wealth in this crypto-asset. A recent study shows that the country with the highest cryptocurrency buying and selling activity in Latin America is Venezuela, with 51% of operations, followed by Colombia with 25%. In the case of Argentina, between 2002 and 2019, the accumulated inflation was 1169.4%. (Valencia, 2021).

Despite the fact that Bitcoin and the Blockchain favor the creation of horizontal and decentralized social relations, the truth is that it is also possible to make a whole series of criticisms of them from the point of view of a project of social emancipation. First of all, it is obvious that Bitcoin and the Blockchain have not become a real and widespread substitute either for money or for the ways in which property rights are exchanged or economic transactions are carried out. In the short term it seems very difficult for Bitcoin to replace real money. (Morales, 2020).

CONCLUSIONS

It was concluded that with the passage of time a new form of payment appeared which is the cryptocurrency, which serves as a means of exchange for the purchase and sale of products and services, practically replacing the money currently used. The first cryptocurrency, more known and used is the bitcoin, however, thanks to technological progress, more of this type of currencies have been developed and little by little have earned their space in the market such as ethereum, ripple and litecoin, in addition, they have a unique record where they register their transactions, as their ledger which is the Blockchain. Cryptocurrencies have reflected a great impact on the world economy since with these it is possible to make transactions and micropayments quickly offering these people an economic growth and pre-distributing their wealth. Another impact is on the companies that support the use of this currency, since they obtain lower costs, making the process faster and thus generating more jobs and supporting development. Cryptocurrencies have had a great impact on the economy of different countries, especially in Latin American countries that have proportionally surpassed their inflation. Finally, cryptocurrencies are also a source of investment, initiating a path to financial inclusion and facilitating international trade, in addition, it is a very speculative and risky market as it faces ups and downs, which could generate losses, but if this were not the case, the gains would be significant. However, cryptocurrencies also have disadvantages, since they do not have a regulatory body, which would lead to criminal acts such as money laundering and tax evasion, being a concern for international bodies seeking to reverse this problem.

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