



# Cryptocurrency in Indonesia: A Sentiment Analysis

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## Abstract

This study was carried out to ascertain the opinions of the Indonesian people, particularly Generations Y and Z, about the growth of cryptocurrency. This study used descriptive statistical analysis to analyse sentiment using primary data from 100 respondents through the questionnaire. The SentiStrength software is used to process the data. According to the findings, generations Y and Z in Indonesia tend to have more neutral sentiment (48%), positive sentiment (23%), negative sentiment (28%), and highly negative sentiment (1%). The findings of this research show that most respondents are more sceptical about cryptocurrency in Indonesia. Respondents, with a neutral sentiment, consider that the development of cryptocurrency has not been inclusive. Therefore, there is no positive or negative sentiment. However, this study also discovered that respondents' negative responses dominated the positive responses. As a result, the findings of this study can be used to develop suitable policies or education. The study's implication is to represent the overall perspective and offer a basic understanding of the opinion of the Indonesian Y and Z generations toward cryptocurrency.

**Keywords:** Cryptocurrency, Sentiment Analysis, Indonesia, Generation Y, Generation Z, SentiStrength

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## 1. Introduction

Technological advances in financial management have helped bring the global economy to an unprecedented level since the early implementation of computing hardware. With the invention of blockchain and cryptocurrency, its development has created a new generation of financial assets (Patil, 2019). Blockchain technology is a list of digital records in the form of packages or blocks developed using the science of cryptography (Irma et al., 2021).

While cryptocurrency is a digital asset supported by blockchain technology, 2008 was the beginning of the cryptocurrency era with the discovery of the first cryptocurrency by Satoshi Nakamoto. However, the first cryptocurrency introduced, Bitcoin, started operating as an open-source blockchain (Noh & Bakar, 2020). Cryptocurrencies can perform the essential functions of currency, as it is considered a medium of exchange, store of value, and unit of account, which is also a function of money (Gafar et al., 2021).



The emergence of advanced tools, applications, and algorithms that analyze financial transactions across millions of data points has further pushed the global economy towards consumers. Technology is considered the primary source of economic development. It makes the economy socially and financially advanced, which leads to an increase in the income level of individuals and leads to a better lifestyle (Patil, 2019). The market movement in adopting this technology shows a fantastic way to get rich quickly (Alaeddin & Altounjy, 2018).

At the beginning of the emergence of blockchain, there was a lot of appreciation that emerged for the presence of blockchain, so many of its supporters consider blockchain to be one of the most important inventions of today. Some research shows that more than forty-three percent of Millennials are leveraging cryptocurrencies quickly, leading to thousands of other alternative currencies (Gainsbury & Blaszczyński, 2017). The Millennial Generation (Around 1977 and 1995) is characterized by specific behaviors such as adopting technology quickly (Patil, 2019).

They are the generation that helped usher in the global technological evolution. They are not new to trying the untested. They are quick to adopt cryptocurrencies despite security concerns and a lack of support from governments. Similar behavior has been evident in the implications of investing and money in general (Patil, 2019). Besides that, generation Z, also known as the hyper-connected generation, is also close to the development of this technology (Alaeddin & Altounjy, 2018).

After the first cryptocurrency, Bitcoin, was officially launched and continued to grow in quantity and demand, cryptocurrency became an instrument that was considered a threat to the existence of conventional finance. Along with the World Bank, governments are also monitoring the unstoppable evolution of the world's financial system. The COVID-19 pandemic has become a catalyst for forcing the entry of all financial and banking industry sectors into the digitalization era. The concept of finance without physical currency is positive for some parties where money will be eliminated and replaced with a digital currency system, but not for others.

Based on this background, this study aims to discuss the public's perception of the development of cryptocurrencies, especially among generations Y and Z in Indonesia. Some of the benefits that can be obtained from this research are knowing the extent of the portrait of the development of cryptocurrency perceptions through the opinions of the Indonesian people in responding to the current development of cryptocurrencies. In addition, this study looks at sentiments related to the perception of cryptocurrencies.

This research is structured as follows—the second part reviews, in general, the literature review. The third section explains the method. The fourth section presents the result and discussion of descriptive research. Then the fifth section is the paper's closing, which contains a conclusion of the research and recommendation.

## 2. Literature review

### 2.1 Generation Y and Z

Generation Y is commonly referred to as the millennial generation, born in the 1980s until 1990s (Mohr & Mohr, 2017). It consists of individuals who were usually raised in a safe and goal-oriented environment. Millennials like to work in teams and have an organized, integrated, and growth-oriented culture. They believe that they will more easily achieve their goals than work individually (Viswanathan & Jain, 2013). Generally, millennials are reluctant to read and reject text-oriented messages, but they read messages and texts in digital media and prefer rich visual messages over pure text communication (Viswanathan & Jain, 2013).

Meanwhile, Generation Z, who was born in the 1990s and grew up in the 2000s (Mohr & Mohr, 2017), is the generation that immediately felt the most significant changes in this century where the world has been equipped with the web, internet, smartphones, laptops, freely available networks, and various very sophisticated digital media. Generation Z grew up on social networks. They are digital-centric, and technology is their identity. They are also referred to as Generation I, Gen Tech, Digital natives, Gen Wii, etc. They were born and raised in the digital world and what distinguishes them from other generations is that they are more connected to the electronic and digital world. Generation Z is used to interacting and communicating in a world that is connected at all times (Turner, 2015).

In addition to psychographic profiles, Generation Y's activities or daily habits have various media used to achieve their goals. Still, they are very skeptical of traditional activities. But now with the advent of the internet has accelerated the life cycle by giving them space to find out about the latest trends to widen their minds to existing and developing knowledge (Valentine & Powers, 2013).



The characteristics of Generation Z are the most ethnically diverse and technologically advanced generations. Generation Z has an informal, individual, and straight way of communicating, and social networking is an essential part of their lives. They are the Do-It-Yourself generation. Generation Z tends to be more entrepreneurial, trustworthy, tolerant, and less motivated by money than Generation Y. They are more realistic about their job expectations and optimistic about the future (Singh & Dangmei, 2016).

Generation Z is very concerned with environmental issues, very aware of the dire shortages and shortages of water, which shows a high sense of responsibility towards natural resources. Generation Z wants to be heard regardless of their young age. Technology is part of their identity. They are technologically savvy but lack problem-solving skills and have not demonstrated the ability to see situations, put them in context, analyze and make decisions. They also appear to be less likely to vote and participate in their community than previous generations, such as Generation Y (Singh & Dangmei, 2016).

## 2.2 Cryptocurrency

In John Vincent Siquian's research in 2020, it was explained that cryptocurrency is a digital asset used as a medium of exchange that uses cryptography as security in the transaction process and for the manufacture of additional units to clarify these assets (Siquian, 2020).

Previous research (Giudici et al., 2020) explained that cryptocurrency is part of a more comprehensive financial asset without involving third-party institutions to certify the transactions it does. In its publication, judging from the purpose, crypto assets are categorized into several sub-categories. Here are some categories of crypto assets; (1) Cryptocurrencies are assets on the blockchain that can be exchanged or transferred between network participants and therefore used as a means of payment—but offer no other benefits, (2) Crypto securities: are assets on the identical blockchain, in addition to offering prospects for future payments, for example, profit sharing. (3) Crypto utility assets: are assets on the identical blockchain, in addition to being exchangeable or providing access to some predefined products or services.

This classification of crypto assets is crucial for global regulators, as they need to determine whether certain crypto-assets should be regulated as electronic money, as securities, or as other forms of financial instruments, especially in light of the potential concerns of investors (Giudici et al., 2020).

Cryptocurrency can be used as a means of paying for goods and services online. Not many countries have legalized it, but many companies have issued their type of cryptocurrency. Often called tokens, and are explicitly traded for the goods or services their company provides. In Indonesia, cryptocurrencies are defined as crypto assets that can only be traded on futures exchanges (Irma et al., 2021).

Currently, the issue of cryptocurrency development leads to a blockchain system that consumes too much electricity to damage the environment and is considered environmentally unfriendly. Blockchain systems on cryptocurrencies such as bitcoin still use proof of work then there are some coins such as Ethereum that use a more environmentally friendly proof of stake system (Siquian, 2020).

A study conducted by The Tokenist magazine gives information on how people worldwide are reacting to cryptocurrencies. In a 2020 poll conducted in 17 countries, 60% of respondents feel cryptocurrencies are a positive innovation in the new financial technology system. This number is increased by 27% from a similar poll performed in 2017. Furthermore, 47 percent of respondents were more confident in using cryptocurrency than well-known banks throughout the world. Another statistic shows that 78 percent of millennials now trust digital currencies more than traditional currencies that we use today.

This fact indicates how the global financial situation is evolving toward digitization. Based on blockchain technology, cryptocurrency has the opportunity to significantly alter the way people do business and make even worldwide transactions faster and more frictionless. Transactions on the blockchain will become more straightforward and more accessible to ordinary citizens as technology advances.

This study examines how the perception of the Indonesian people, which is a developing country and the majority Muslim population, views the development of cryptocurrency. Research on cryptocurrency sentiment is mainly done with a focus on price changes. Not many researchers have found out about how the community responds to the development of cryptocurrency, even though their point of view about the positives and negatives of cryptocurrency is significant to know, primarily to determine policy or development of appropriate innovations.

The urgency of discussing cryptocurrency sentiment in Indonesia is because many Indonesian people can achieve a demographic bonus, so many people of productive age will make more financial transactions and investments. They have the potential to become users of this digital currency in the future.



### 3. Methodology

Sentiment analysis is the act of recognizing and classifying computational views represented in a piece of text, particularly to establish whether the author's attitude toward specific topics, products, and so on is positive, negative, or neutral.

Sentiment analysis monitors public opinions via social media or direct interviews, allowing an institution to get insight into how users or the broader public feel about specific issues and discover problems before they become more serious. The findings of this study are often utilized as the foundation for developing a policy that follows the facts and conditions.

This study uses primary data from questionnaires distributed to people of various ages from the Y and Z generations in Indonesia. Using a survey approach, 100 respondents were found domiciled in West Java Province, the province with the largest population in Indonesia. There are many metropolitan cities in the region, such as Depok, Bogor, and Bekasi. Respondents consist of men and women with the age range of 20 to 30 years dominating, while those over 30 years are the minor respondents. The respondents have various activities ranging from students, homemakers to academics, and practitioners in the financial sector. The methodology used in this study is a qualitative method approach with descriptive statistics. The qualitative research method is based on the philosophy of postpositivism, which is used to examine the condition of natural objects (as opposed to experimentation) where the researcher is the critical instrument (Giudici et al., 2020).

The non-random sampling technique did the data collection technique. The Non-random sampling technique is a data collection technique based on selecting a characteristic by obtaining a relevant sample to achieve the objectives of a study (Tansey, 2009). In this study, the author uses purposive sampling, which is a technique from non-random sampling. In the purposive sampling technique, the emphasis is on the consideration of specific characteristics or characteristics. Purposive sampling takes data sources by determining the sample with specific considerations (Sugiyono, 2010). The characteristics of the respondents in this research are those who fall into the categories of generation Y and Z with domicile in West Java. To measure the sentiment map on the results of the cryptocurrency perception questionnaire, the researcher used SentiStrength software which is widely used in sentiment analysis research.

Sentiment analysis is a research approach commonly used to measure public opinion on a theme. Sentiment analysis is done by analyzing particular text in special software for word processing and not processing numbers. Sentiment analysis consists of three subprocesses: classification of subjectivity, orientation detection, and opinion of target holders & detection.

Until now, most of the research in sentiment analysis was intended for English because of the tools and sources for English. Some sources often used for sentiment analysis are SentWetchnet and Wordnet. The essential task in sentiment analysis is to classify the polarity of text in the level of documents, sentences, or features and aspects, whether the opinions expressed in documents, sentences, and feature entities have a positive, negative or neutral aspect. Furthermore, sentiment analysis can be emotionally expressed, happy, or angry to produce an analysis that can be a reference for the development of cryptocurrency.

### 4. Results

In early July 2021, the author distributed questionnaires to 100 respondents of generation Y and Z in Indonesia. The research was conducted to obtain primary data, which is used to calculate the sentiments of the Indonesian people towards the issue of cryptocurrencies. As well known, sentiment analysis is research commonly used to measure public sentiment towards a theme. In this case, the analysis will be used to analyze the cryptocurrency theme. This study will use SentiStrength to process data from distributing questionnaires to generations Y and Z in Indonesia.

Based on the data of questionnaires distributed to generations Y and Z in Indonesia, the results of the opinions of the respondents were classified into five types of category: namely opinions with high positive values (very good), positive (good), neutral (neutral), negative (bad) and high negative (very bad). The results of the analysis of sentiment towards cryptocurrencies in Indonesia which are divided into five types of categories, can be seen in the following figure:

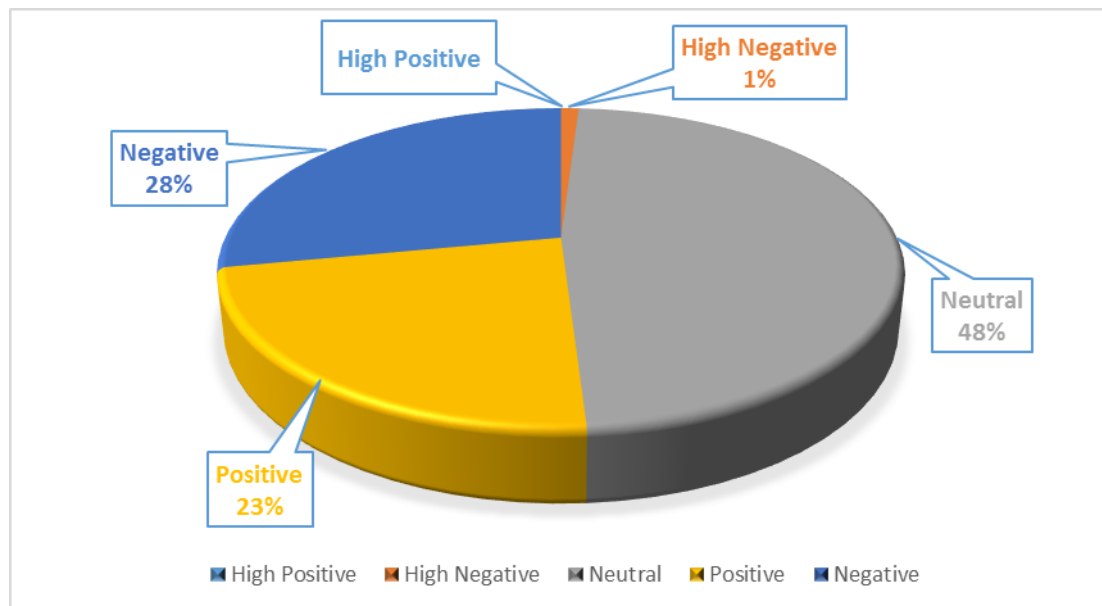


Figure 1. Sentiment Analysis of Cryptocurrency in Indonesia

Source: Author

Figure 1 showed that the development of cryptocurrencies in Indonesia has perfect sentiment (high positive) of 0%, then good very good (positive) of 23%. In comparison, bad sentiment (negative) of 28%, very bad (high negative) is 1 %, and the rest have a neutral sentiment of 48%.

The results of the sentiment above are obtained from the opinions expressed by the respondents in the questionnaire. The words conveyed in the written text are ranked from very negative intervals (-5) to very positive (5), with 0 being neutral. The opinion score of the sentence submitted by the respondent is calculated by adding up the sentiment score of each word listed in SentiStrength.

The good sentiment (positive) is the opinion of the questionnaire respondents who are positive and tend to be optimistic in dealing with the existence of cryptocurrencies in Indonesia and support the development of cryptocurrencies. Meanwhile, negative sentiment is a negative opinion in the questionnaire regarding the development of cryptocurrencies in the financial world, especially Islamic finance in Indonesia. It states that cryptocurrencies cannot be applied inclusively for various reasons.

This data shows that most people are more neutral in responding to the existence of cryptocurrencies in Indonesia. In addition, the negative response is more than the positive response. Therefore, this situation must continue to be optimized appropriately by the relevant parties. Sharia financial and economic education needs to be facilitated with a system following the community's conditions.

Respondents in a neutral position expressed many answers that they did not know much or did not know about the issue of cryptocurrency developments. Respondents in a positive position state that this is one of the latest investment instrument innovations that has developed quickly. The existence of cryptocurrencies supported by the current industrial system makes it easier for people to reach their existence. As for the respondents on the negative side, many states that the development of cryptocurrencies has price fluctuations that are very risky to be used as investment instruments. In contrast, the current cryptocurrency working system, considered non-sharia, receives negative opinions from respondents of generations Y and Z in Indonesia.

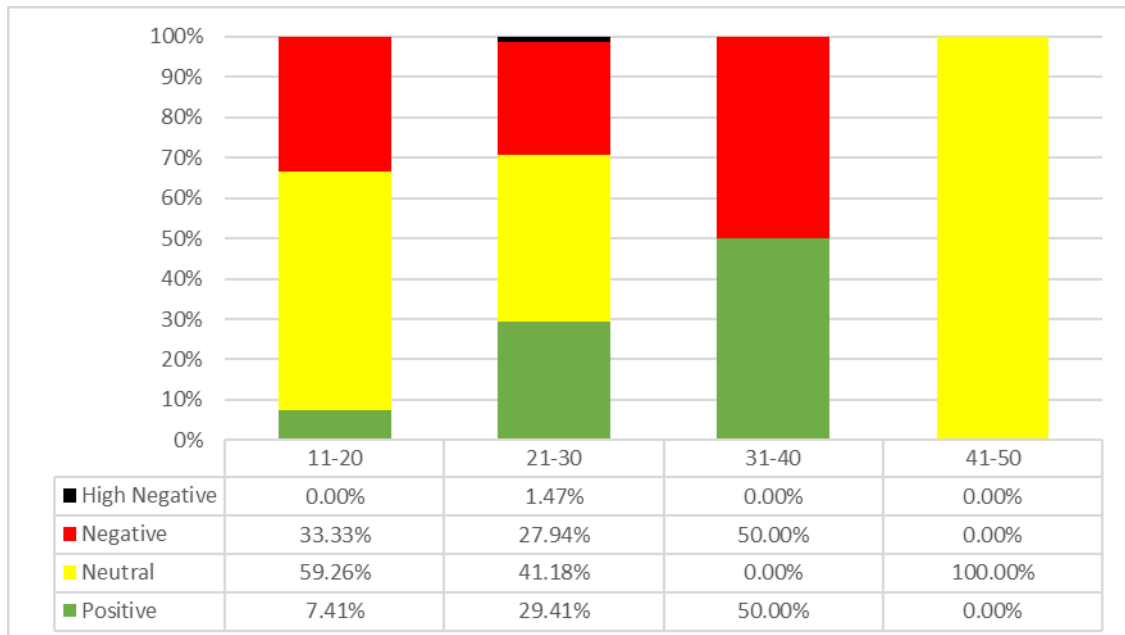


Figure 2. Intertemporal Sentiment Analysis of Cryptocurrency in Indonesia per Age

Source: Author

Based on the figure above, it can be seen that the composition of perception is divided by age range. Respondents with an age range of 11 to 20 years were found to have good (positive) sentiments of 7.41%, while bad (negative) sentiments were 33.33%, very bad sentiments (high negative) 0%, and the rest had neutral (neutral) sentiments by 59.26%. As for respondents with an age range of 21 to 30 years, it was found that positive sentiment was 29.41%, while bad sentiment (negative) was 27.94%, very bad sentiment (high negative) was 1.47%. The rest had negative sentiment—neutral (neutral) by 41.18%. Meanwhile, respondents with ages above 31 to 50 years each have a sentiment of 50% positive and 50% negative for 31 to 40 years and neutral (neutral) for 41 to 50 years.

Based on the results above, it can be seen that respondents with an age range of 11 to 30 years have more diverse sentiments than those whose age range is above 30 years. A scientific study explained that Bitcoin, which is one type of cryptocurrency, is widely used by those in their 20s. The findings have also been published in "bitcointalk.org." Likewise, in one of their studies on Generation Z, the Generational Kinetics research study center stated that they are more competent in viewing the money work system. Besides that, they are more receptive to new technology (Alaeddin & Altounjy, 2018).

## 5. Discussion

A cryptocurrency is a form of payment for goods and services that can be done online. Many companies have issued their currency, often called tokens, and explicitly traded for their company's goods or services. Blockchain technology can be implemented in various elements, including financial services, blockchain government IoT, blockchain identity, etc. In Indonesia, cryptocurrency is defined as a crypto asset that can only be traded on a futures exchange. There are 229 cryptocurrencies recognized in Indonesia (Irma et al., 2021).

Along with age differences in the perception of cryptocurrencies, the number of sentiments differs from each age category. The most significant number of respondents came from the age category with a range of 21 to 30 years. They have good sentiment (positive) of 29.41%, while bad sentiment (negative) is 27.94%, very bad sentiment (high negative) is 1.47%, and the rest have neutral sentiment (neutral) of 41.18%.

As for all respondents, the age range of 31 to 40 years has the most significant positive sentiment. Their positive opinion is because they think that cryptocurrencies can now be an investment asset choice. At the same time, the research found very bad sentiment (high negative) by 1.47% of respondents with an age range of 21 to 30 years. They argue that the development of cryptocurrencies has been very rapid lately, but they are worried that it is an asset that will become an economic bubble.

Blockchain, including cryptocurrency systems, has unlimited possibilities and can continue to be developed depending on needs because it is open source. Examples of actual use in several Indonesian companies, the Closed System Blockchain used





by iGrow, for tracing and recording, also store essential company data and many more examples of Indonesian companies that use the blockchain system but create a closed system or are still explicitly used for the company.

If cryptocurrency is officially a global currency, the risk is that the government loses control of its monetary policy and the tools used by the central bank to oversee inflation and financial stability.

Cryptocurrency is a safer alternative for the physical currency currently used, especially with the advantage of encrypting sensitive data transfers using cryptographic protocols, which are very complex code systems.

The widespread use of cryptocurrency is not impossible in the era of digitalization. It is uncertain that cryptocurrency will be a transaction tool, but the development will continue. Financial and digitization technology development moves towards an infinite era, and the national border no longer has dimensions when people are used to transacting without cash.

Cryptocurrency as an unprecedented innovation in today's financial world does bring benefits. However, it is still in its early stages of development, with its proven disadvantages based on user activity and not just system weaknesses. Previous research found that the losses or *mafsadat* owned tended to be more precise than the positive reasons that agreed to make cryptocurrency the primary currency from the *Maqashid Al-Syariah* view (Noh & Bakar, 2020).

The issue of cryptocurrency, which is currently being used as a medium of exchange, is a meaningful discussion, especially for Muslims, who make up a large part of the world's population. In big countries like China and Russia, cryptocurrencies are banned for reasons such as security and risk. In Muslim countries, which apply Islamic teachings, the permissibility of cryptocurrencies needs to be studied from an Islamic perspective. So far, not a single Muslim country has allowed cryptocurrencies for legal transactions because it has speculative motives for profit. Another thing that needs to be clarified is supply quantity, online merchants, and stability because cryptocurrencies do not have flexible characteristics, so they cannot be intervened by the government (Siswanto et al., 2020).

On the other hand, cryptocurrencies are based on a blockchain platform to process all financial transactions. This technology enables faster, cheaper, and more secure transaction processing compared to traditional transaction models. Since transactions use digital assets, these assets can be consumed and traded digitally through crypto service platforms for various financial transactions (Alam et al., 2019).

## 6. Conclusion

This study found the results of sentiment calculations for the Indonesian people to the development of cryptocurrency. The results show that Indonesians who belong to the Y and Z generation categories have a very good (high positive) sentiment of 0% and a good (positive) sentiment of 23%. In comparison, 28% bad sentiment (negative), very bad sentiment (high negative) 1%, and the rest have a neutral sentiment (neutral) 48%. These results indicate that Indonesian society, especially the Y and Z generations, still tends to negatively endorse cryptocurrency by showing a lack of interest in its development. They see that cryptocurrency is a new financial instrument with a considerable unsafe risk that refuses to use it.

It should be noted that the purpose of this study was to present an overview of the perceptions of the development of cryptocurrency among the people of Indonesia. Still, the limitations were only for the Y generation and generation Z with a limited one-year study time, 2021. Recommendations for academics were to continue to conduct related research on the theme of the development of cryptocurrency and how it impacts the financial sector, especially from the sharia side, and produces innovation that can increase public literacy. Furthermore, recommendations for the central bank as regulators need to pay more attention to the development of cryptocurrency and establish regulations to control their development in Indonesia.

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