

# What Are the “New Infrastructure” and Related Values?

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**How to cite this paper:** Jiang, Z. C., Wang, X. X., Gong, X., & Zhang, X. (2020). What Are the “New Infrastructure” and Related Values? *Open Journal of Business and Management*, 8, 1483-1490.  
<https://doi.org/10.4236/ojbm.2020.84094>

**Received:** April 28, 2019

**Accepted:** June 30, 2020

**Published:** July 3, 2020

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## Abstract

Recently, the “new infrastructure” is the most famous and popular word mentioned by both governments and individuals in Chinese economy area. The “new infrastructure” is not only a good driver to face the slumping economy, but also a necessary strategy for future development. It conforms to the future trend of economic and social development, adapts to China’s current stage of social and economic development and needs for transformation, and will become a new engine of social and economic development while strengthening weak links. The “new infrastructure” mainly refers to the new type of infrastructure related to the digital economy and energy industry. The development of the “new infrastructure” is meaningful to current society and development in the future. This paper introduces the definition and situation of the “new infrastructure” in China and shows the importance of it. The paper also tries to innovatively analyze it from both demand side and supply side and some possible issues.

## Keywords

The “New Infrastructure”, Seven Area, Digital Economy, Developing Strategy

## 1. Introduction

Since the outbreak of the financial crisis in 2008, the global economy has been in a low growth trend. The field of scientific and technological research and inno-

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vation has also entered a relatively low period, which means that revolutionary results have not yet appeared blooming in batches. Countries are still exploring a new industrial revolution that will update the economic development and the lives of ordinary people. In this process, countries are looking for opportunities of the new industrial revolution to take the initiative in future development.

On the one hand, over the past decade, China has steadily improved its level of research and innovation, partially transforming itself from the world's factory to a manufacturing powerhouse, and even achieving major breakthroughs in some cutting-edge fields. If China wants to compete in the future of science and technology and economic development, it is necessary to start the foundation now. Therefore, "new infrastructure" is the right meaning.

On the other hand, the outbreak of COVID-19 has damaged the global economy, as a powerful trade country, especially an export country, China suffering heavy losses from it. To reduce the negative impact of the epidemic on the economy as soon as possible and promote the economy to return to the normal track, it is necessary to drive the economy by focusing on the areas represented by "new infrastructure". In addition, as the epidemic spread globally, China is likely to face greater external environmental pressure and to encounter more difficulties in the growth of external demand. Therefore, more domestic drive is needed to promote economic development to face the coming risk (Zou, 2020).

## 2. Literature Review

### 2.1. The Definition of "New Infrastructure"

Compared with "traditional infrastructure" represented by real estate, railway, highway, airport and other infrastructure construction, "new infrastructure" is endowed with new scientific and technological connotation (Yuan, 2020). The "new infrastructure" can be defined into 3 ranges.

At the first, the "new infrastructure" mainly refers to the new type of infrastructure related to the digital economy, which has also been clearly declared at the central government's major conferences since the end of 2018. It should include the construction of new type of infrastructure such as 5G network, data center and industrial Internet. Secondly, it should embody innovative, environmentally friendly and other new development concepts of scientific and technological infrastructure construction. It not only includes 5G networks, data centers, artificial intelligence (AI), industrial Internet and other parts of the digital economy, but also includes ultra-high voltage (UHV), high-speed rail transit and charging piles of new energy vehicle (Tian, 2020; JueCezhuli, 2020). In addition, "new infrastructure" is divided into "infrastructure implementation of digital" and "digitalized infrastructure" by different research institutions, according to their understanding of digital economy. This definition not only includes the basic foundation of digital economy such as cloud technology, but also includes the digital transformation and upgrading of traditional infrastructure such as railway, road and airport (Tian, 2020).

Therefore, it can be concluded that the “new infrastructure” involving communication, electric power, transportation, digital and other social livelihood key industries, would be the powerful drive for China economy.

## 2.2. Current Situation of the “New Infrastructure” in China

Since 2018, there have been seven meetings or documents at the central government level that point out the need to strengthen the “new infrastructure”. In 2019, according to incomplete statistics, at least 8 provinces including Liaoning, Jiangsu, et al. have proposed to speed up the pace of 5G commercial use. Hubei has requested to speed up the industrialization of 5G, and Beijing has proposed to speed up the construction of new 5G infrastructure. At least 10 provinces including Beijing, Liaoning et al. have been wanted to promote the development of AI. At least seven provinces pledge to strengthen their industrial Internet (IT-newspaper, 2020). Now, under the dual pressure of the epidemic and the external environment, it is imperative to increase infrastructure investment to boost the economy. According to incomplete statistics, with the exception of a few provinces that have not announced their overall investment plans, the total amount of investment announced by other provinces in the future has exceeded 40 trillion yuan (Fenghuang.com, 2020).

## 2.3. The Investment Potential of the “New Infrastructure”

It already evaluated that the investment scale of the seven key areas of “new infrastructure” in 2020 is about 1.2 trillion yuan (Sina, 2020). In addition, other agencies are more optimistic: the combined investment in the seven new infrastructure sectors could reach between 2 trillion and 2.45 trillion by 2020. Compared with 2019, it will increase by 240 - 550 billion yuan, an increase of 13% - 29% (Huashang, 2020). It is estimated that from 2020 to 2025, the investment scale of intercity high-speed rail and rail transit in the “new infrastructure” field is the largest, followed by the construction of 5G base stations (Forward.com, 2020).

With 5G base stations and related equipment investment is about 250 billion - 300 billion yuan. The UHV investment is about 80 billion - 100 billion yuan, and the investment of charging piles of new energy vehicle is about 20 billion - 30 billion yuan. The big data center, AI and industrial Internet related investment are about 60 billion - 80 billion yuan, 30 billion yuan and RMB 50 billion - 100 billion, respectively. The inter-city high-speed rail transit investment is about RMB 600 billion - 650 billion which is the biggest scale (Sina, 2020).

## 3. Macro Analysis—The Aim of the “New Infrastructure”

### 3.1. From the Perspective of Demand Side

On the demand side, consumption, investment and export are the three driving forces of the economy. According to the composition of China’s GDP over the years, consumption and investment play a key role in China’s economic growth.

It can be shown by **Table 1** that consumption expenditures and gross capital formation are accounting for over 50% and almost 45% of GDP (Expenditure Approach) in recent years.

According to **Table 2**, it can be presented that in the three driving forces, consumption is playing the most important role, which follows gross capital formation. However, the COVID-19 epidemic in 2020 already inevitably curbed the consumption demand of residents in many sectors such as traveling, restaurant, shopping etc. it can be estimated that the consumption expenditures would be decreased.

Therefore, in order to achieve the goal of stable economic growth and building a moderately prosperous society in all respects, the gross capital formation will play a more important role of the three main drivers, which means investment becomes more significant. In addition, infrastructure investment is one of the main sources of China's fixed asset investment, accounting for more than 20% of the total fixed asset investment over the years (CCID, 2020).

Therefore, the aim of "new infrastructure" is not only to steady the fixed asset investment, but also improve the importance of the role of investment playing in the demand side.

It can be concluded that, under the serious situation, among the three drives, the proportion of consumption would decrease, but the investment is becoming a more important opportunity to the country and business industrial.

**Table 1.** Expenditure approach gross domestic product (Billion yuan).

Year	GDP	Consumption Expenditures	Gross capital Formation	Net export			
2014	64,718.2	32,831.3	50.73%	30,271.7	46.77%	1615.2	2.50%
2015	69,910.9	36,226.7	51.82%	31,283.6	44.75%	2440.7	3.49%
2016	74,563.2	39,991	53.63%	32,913.8	44.14%	1660.4	2.23%
2017	81,526	43,715.2	53.62%	36,395.5	44.64%	1416.3	1.74%
2018	88,442.6	48,034.1	54.31%	39,664.5	44.85%	744	0.84%

Source from National Bureau of Statistics of China (2019a).

**Table 2.** Contribution to GDP (%).

Year	Consumption expenditures		Gross capital formation		Net export	
	Rate of contribution	Pulling rate	Rate of contribution	Pulling rate	Rate of contribution	Pulling rate
2014	48.8	3.6	46.9	3.4	4.3	0.3
2015	59.7	4.1	41.6	2.9	-1.3	-0.1
2016	66.5	4.5	43.1	2.9	-9.6	-0.7
2017	57.6	3.9	33.8	2.3	8.6	0.6
2018	76.2	5	32.4	2.2	-8.6	-0.6

Source from National Bureau of Statistics of China (2019b).

### 3.2. From the Perspective of Supply Side

With the reform and opening up entering the deep-water zone and the demographic dividend gradually weakening, China urgently needs a strong internal impetus to stimulate by deepening the supply-side structural reform. The digital economy, as the strategic drive and strategic industries, which will greatly improve the quality and impact of supply-side structural reform, should be vigorously developed.

The “new infrastructure” can have a strong pull, support, and radiation effect on the national economy, which is beneficial to the transformation and upgrading of the industrial chain and activate structural potential. In addition, it is conducive to gaining voice and power in the process of restructuring the world economic structure, so as to accelerate the transformation of China from high-speed development to high-quality development.

From the perspective of supply side, each scientific and technological revolution has triggered major changes in production mode, industrial structure and industrial layout. The “new infrastructure” mainly focuses on science, technology, and digitization and reflects the basic thinking of supply-side structural reform, it also enriches the content and means of supply-side structural reform. It can enhance the global competitiveness of China’s on supply side.

### 4. The Developing Strategy of “New Infrastructure”

First of all, to put scientific and technological innovation at the heart of China’s overall development, and eternal persist to the path of independent innovation, creating new drivers for innovation-driven development. The “new infrastructure” covers emerging technologies such as 5G, industrial Internet, AI and big data center, which will drive the transformation of the national economy to digitalization and intelligent, thus, it effectively promoting technological innovation, industrial innovation and business model innovation in various sectors in China. It will promote the development of new forms and models of business and make new drivers and sources of economic growth and industrial upgrading.

Secondly, it ought to attach importance to the basic role of 5G. The industrial Internet, AI and big data center are based on digital information network. The commercialization and popularity of 5G have laid a foundation for other industries. In terms of infrastructure construction, we will accelerate the deployment of 5G base stations and other supporting facilities. In addition, it should be positive to vigorously develop the 5G industry, actively building key laboratories, R&D and manufacturing centers, data centers and other technological innovation platforms in the 5G field, and cultivate 5G enterprises. In terms of application, it is important to promote the coverage of 5G network and gradually realize the extension of 5G network in both cities and countries.

In addition, it is necessary to coordinate developing the seven major areas of “new infrastructure”. In the intricate socio-economic systems and interdepen-

dent sectors of the national economy, it is particularly important to coordinate and integrate development with various industries. It is also positive to give play to the advantages of the Chinese society system.

## 5. Possible Issues

### 5.1. The Real “New Infrastructure” May Not So Huge

At present, the “new infrastructure” is not the subject of the investment projects which is so-called trillions of yuan (Tian, 2020). According to incomplete statistics, the 22 provinces and regions such as Beijing, Shanghai, Zhejiang, Jiangsu, Anhui, have announced their investment plans of a total investment amount of about 47 trillion yuan, roughly the same as the planned investment amount of 31 provinces and cities in Li (2020). Among them, 21 regions will promote 5G construction layout and other related work, and eight regions have clearly planned the number of new 5G base stations planned within the year, totaling about 276,000. About 20 provinces, including Guizhou and Yunnan, plan to upgrade the digital economy (Jusfoun, 2020). But, the “new infrastructure” is really emphasized mainly in the eastern provinces like Shanghai, Jiangsu, Zhejiang and Shandong etc. which plan more than ¥5 trillion investment. Moreover, so-called “new infrastructure” investment does not account for as much as expected of the multi-trillion-dollar investment plan (Tian, 2020). It means that in the huge investment program, the proportion of the “new infrastructure” may not be as considerable as expected. The “new infrastructure” requires related business industry and high-tech supporting which are lacking in some developing provinces, sightless investment is not so efficient for some regions.

It can be concluded that the investment scale of the “new infrastructure” may not be so huge in the news and the investment efficiency may not positive.

### 5.2. The Burden of Government and Resident May Increase

In addition, massive government investment will undoubtedly increase the debt of central and local governments. It is negative to some regions where are not rich. It is difficult to tradeoff to maintain fiscal balance or growth. After the financial crisis in 2008, with the introduction of the large-scale stimulus program. On the one hand, the high economic growth rate is sustained. But on the other hand, the overall debt ratio of the whole society begins to rise, which accumulated great potential risks. These measures have also spurred a sharp rise in real estate prices, making it difficult for residents to meet rigid demand, especially in developed cities. How to avoid a similar situation caused by “new infrastructure” should be considered carefully.

Therefore, the investment may increase the debt ratio and the burden of residents.

## 6. Conclusion

The “new infrastructure” is an inherent requirement for the Chinese economy to

replace old growth drivers with new power, and a foundation for future innovation-driven development. The need for “new infrastructure” investment is not the result of the epidemic, but the acceleration of the process. In a sense, the “new infrastructure” is a stimulus for China’s economic recovery after the epidemic, but also a necessary road for future development. For example, 5G construction will directly promote the explosion of digital and Internet industries, while the construction of charging piles will benefit the new-energy automobile industry. The “new infrastructure” will have a major impact on people’s way of life and economic development.

This paper introduces the definition and situation of the “new infrastructure” in China and shows the importance of it. The paper also tries to innovatively analyze it from both demand side and supply side and some possible issues.

This research introduces the definition, current situation and investment potential of the “new infrastructure”. The aim of the “new infrastructure” is innovatively attempted to analyze from demand side and supply side. The developing strategy of “new infrastructure” and the possible issues also are pointed out. The author suggests that scientific research and judgment, rational investment and avoiding blindly following the trend are the right attitude of “new infrastructure”.

### Limitation

The “new infrastructure” is a new definition, so that the related analysis is like discussing stratagems on paper. In addition, some references of this paper are from the Internet, may not be the authoritative data.

### Acknowledgements

We would like to thanks Dr. Xuanxuan Wang for having prepared the vehicle used in the study. We are grateful to Dr. Xiang Zhang, Dr. Xun Gong for reviewing the manuscript. This research was supported by NSFC (Project No.: 71373091) and youth program of high-end science and technology innovation think tank of Chinese Association for Science and Technology (DXB-ZKQN-2017-043).

### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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