Brief Analysis on Industrial Restructuring and Diversified Development of Mineral Economy

DING Yun¹,²

¹School of Humanities and Economic Management, China University of Geosciences, Beijing, 100083. China
²Capital Operation Department, China Minerals Energy Limited
654040303@qq.com

Abstract: Under the background that the global mining situation continues to be sluggish and Chinese economy has entered a new normal era, numerous problems are appearing, such as mining exploration financing difficulties, information asymmetry and imperfect market-based management. The combination of “Internet Plus” and “Mass Entrepreneurship and Innovative” with the traditional mining and large enterprises is an effective way of promoting mineral economic transformation and upgrading.

1. Introduction
General secretary Xi Jinping points out that it is the general trend of China’s economic development to understand, adapt to and lead the “new normal era” at present and in the future[1]. It is an important strategy to guide the sustainable development of China’s economy, and there is a guiding significance for the reform and development of the geological and mineral industry[2]. It is necessary to fully understand the new situation facing the development of geological exploration industry under the new normal era, actively adapt to the new normal era, strengthen reform and innovation, and positively responds to various difficulties, so as to continuously promote the quality and efficiency of geological and mineral economy.

2. Overview of International Mining Market
In recent years, the global mining industry has shown a new normal era with the development of the world economy. The economic structure has been adjusted and continues to be sluggish, and the price of world mineral products has fallen sharply[3]. Under such a severe market situation, the investment in international mineral exploration and development continues to shrink, resulting in the discovery of new mineral deposits and the gradual reduction of new mining investment projects. The supply and demand situation of different minerals is unstable, such as, bulk minerals are faced with the dual pressure of insufficient demand and oversupply. At the same time, due to the development of new energy vehicles and AI appliances, the demand for new energy materials represented by lithium is growing rapidly. For mining companies, which are in poor operating conditions, they face to be merged and reorganized gradually.

3. The “New Normal Era” of Chinese Economy
As shown in figure 1, the Chinese economy has entered in and will stay in the lower growth rate for a long time. The Central Economic Work Conference systematically elaborated on the “New Normal Era” of the Chinese economy.
"Era". It is said that after more than 30 years of high growth, the growth rate of 9% above is unlikely to continue\cite{4}. This phenomenon has basically gained public recognition, and the current economic situation has initially confirmed this point. There are two main reasons for the decline in growth rate. Firstly, China has entered the ranks of middle and high income countries (from World Bank Data). According to economic growth theory and international experience, the advantages of latecomers are relatively little, and the potential for economic natural growth is declining. Secondly, the decision-makers have overcome the past speed plot and have a new balance mentality towards the long-term economic growth trend, accepting and agreeing that the long-term economic growth should be decelerated to the lower level.

![Figure 1. The expectation of China's medium and long-term economic growth](image)

Affected by the slow growth of the global economy and the "New Normal Era" of China's economy, the mining economy has suffered a "cold wave", and China's mining economy has entered a downward cycle\cite{5}. According to the preliminary statistics, China invested amount of 415 billion yuan on geological exploration in 2018. Compared with the amount of 462.8 billion yuan in 2017, China's geological exploration investment has declined by 47.8 billion yuan, dropped by 10.33% year on year, and the investment from social funds dropped by nearly 20%, as shown in figure 2. In 2017, the drilling workload decreased by 5.3 million meters compared with it in 2016, and the number of newly discovered mineral deposits decreased from 414 in 2016 to 233\cite{6}. The total number of effective exploration rights has been declining continuously for several years, and the number of transferred exploration rights has been significantly reduced.
4. Problems in the Traditional Mineral Industry
The arrival of the new normal era has caused the mineral market downturn, many mining companies in troubles, and numerous of problems appearing, which can be summarized as the following three aspects. The first aspect is the inefficiency of the industry. The asymmetric supply and demand information and the uncoordinated relationship between the mineral industry and local departments are the main reasons for inefficiency. It is difficult to coordinate the mining industry and local departments, thus lead to unclearly professional mining division and the ineffective participation of social forces in management activities under the local departments. The second aspect is lack of financial services. The credit financing of loans provided by the banks to mining enterprises has been tightened, resulting in a shortage of funds for the mining enterprises. At the same time, the exchange for equity financing has not opened a mining capital trading platform. Therefore, the current mining enterprises with heavy assets are under the lack of financial support condition. The third aspect is inefficient management. In terms of internal management, the management system level of traditional geological and mineral enterprises is inefficient, especially the management of production, finance, environmental protection, safety and other aspects, which are in a backward level and urgently needs reform and improvement; In terms of external cooperation, mining enterprises and related enterprises in upstream and downstream, in domestic and foreign, and related industrial chains has numbers of opportunities to cooperate with.

5. Mineral Industry Restructuring by “Internet Plus”
The ubiquitous network, information and innovation are the biggest driving force for the world’s transformation\(^7\). The combination of Internet and mining are appearing, and this model can not only integrate the traditional mining industry with information technology, but also carry out subversive innovation reforms. It can also greatly accelerate the benign adjustment of the traditional mineral industry structure, and will eventually release huge productive forces.

The “Internet plus mining” model tightly combines the three aspects of industrial chain, finance and enterprise management as a whole, which will greatly improve the three core problems mentioned in the traditional geological and mineral industrial structure. Firstly, Internet combines traditional mining industry with the industry chain, leading to the new mining industry. The mining industry is one of the most traditional industries in China. There are hundreds of industrial chains, and any one of the industrial chains covers the upstream and downstream links of geology, exploration, mining,
screening, processing, smelting, transportation, and trade. Compared with other industries, the geological and mineral industry is deeply influenced by the planned economy and the thinking mode in the industrial age, so the traditional industrial mode seriously restricts the development of the geological and mineral industry; while the “new mining industry” model will merge and restructure these traditional industry chains. It changes the starting point to the market orientation, the principle to flexible production, the fundamental base to information sharing, thus it build a new type of upstream and downstream partnership. Meanwhile, a new mode of ecological mineral industry will be established. Secondly, Internet combines traditional mining industry with the finance, leading to the new mining financing. Finance is the blood to maintain the survival of the industry. If the financial support for the industry is insufficient or the financial chain is broken, the enterprise will face slow development or even close to death. The existing traditional banking system, capital market and supply chain services cannot meet the needs of mining development. The innovation of the “new mining finance” mode is extremely urgent. Therefore, the mining loan, mining trade and mining chain services related to Internet finance should be developed rapidly, and the Internet financial innovation services should be carried out according to the mining situation. The functions of the three services are as follows: the mining loan implements P2P loan and financial management services; the mining trade implements equity investment and financing services; and the mining chain implements the integration of information flow, logistics and cash flow to provide upstream and downstream enterprises, meanwhile, it provides financial plan for the supply chain industries. Thirdly, Internet combines traditional mining industry with the enterprise, leading to the new mining enterprise. In terms of the internal mining enterprises, the Internet will bring about innovative changes in organizational structure and management mode, thus a more flat organizational layer will be established and more convenient management communication methods will appear. The “new mining enterprise” model will generate new employment relationships, promote teamwork and generate more value. In terms of the external mining enterprises, the Internet will be significant changes of market competition and cooperation models. The more transparent markets will be built and the more intense competitive environment will be formed; therefore, for those companies that are less able to adapt to the change process, they will be succumbed to the survival of the fittest or the long-term ruin at the bottom of the industry.

6. Mineral Economy Diversification Development by Mass Entrepreneurship and Innovation

The China State Council stated in the *Opinions on Promoting Certain Policies and Measures for Mass Entrepreneurship and Innovative Publicity* that it was necessary to form a development pattern of small enterprises springing up and large enterprises propping up to achieve innovation-driven development and create new impetus. The state-owned large-scale mining enterprises should actively respond to the call of the “Mass Entrepreneurship and Innovative”, and actively transform the investment incubation platform and the maker acceleration platform to achieve diversified development of the geology and mineral economy. The startup services platform should be established for the mineral industry, so as to accelerate the marketization, specialization, integration and network construction of geological and mineral enterprises. This platform shall provide five sub-platforms, including maker service platform, maker finance platform, maker space platform, maker college platform and maker factory platform. These five platforms together constitute an open and entrepreneurial ecosystem for mining enterprises, and realize the synchronized development of diversified economy for mining enterprises. The first platform of maker service provides professional services. It offers a series of entrepreneurial services including legal protection, intellectual property protection, human resources, IT information construction, finance and taxation, and business registration for makers of geological and mining enterprises. The second platform of maker finance provides financing supporting. It provides financial services such as financing planning, investment and financing scheme design, project evaluation, capital docking, post-investment management and listing guidance for makers of geological and mining enterprises. The third platform of maker space provides office space. It provides office space, equipment leasing, incubation platform for offline resource and a series of services to reduce
entrepreneurial risk and cost control for projects in the initial stage of geological and mineral enterprises. The fourth platform of maker college provides training and upgrading services. It affords entrepreneurship training, business opportunities and other training services for makers of geological and mining enterprises, as well as providing talent and technology services in colleges and universities. The fifth platform of maker factory offers the project displays. It supplies mining right information, equipment procurement, technical and economic demonstration, production line design, sales and other services for makers of geological and mining enterprises. The five sub-platforms will mainly achieve the following five goals. Firstly, it is established entrepreneurship trainings cooperate with famous colleges and universities at home and abroad for geological and mineral enterprises. Secondly, it runs the industry lines for operating new projects by mining makers or small mineral companies. Thirdly, it provides low-cost human resources, financial resources and legal resources services for small and micro mining makers. Fourthly, it offers financing services and online communication platform for geo mining makers. Fifthly, it attracts lots of graduates into mining enterprises and opens diversified development channels.

7. Conclusion
The international leading Internet information technology and the enthusiasm of mass entrepreneurship and innovation will be used to reform the relatively backward mineral industry in China. It will enhance the cooperation and management of geology and mining enterprises, strengthen the upgrading of geo-mineral industry structure, and ultimately enhance the core competitiveness of China’s mineral industry.

References
[1] Wu H 2018 *Theoretical Horizon* 12 16
[2] Hong Y, Liu W and Gao P 2018 *Social Sciences in China* 9 4
[3] Xu M 2018 *China Mining Magazine* 27 1
[4] Li B, Qi Z and Ding R 2018 *Modern Economic Science* 6 1
[5] Ma D, Fei R and Yu Y 2018 *Resources Policy* 6 13
[6] Zhao P 2017 *Wide Angle Lens* 7 262
[7] Wu X and Wang Y 2018 *Science, Technology & Economy Market* 12 66
[8] Sun C 2015 *Chinese Talents* 13 5