

## **DIGITAL ECONOMY AND IMPORT SUBSTITUTION OF DOMESTIC CHIPS**

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Advances in digital technology have driven the digital transformation of Chinese enterprises, but there is a crisis lurking behind the opportunities. The roots of China's digital economy are unstable, the high-tech industry represented by China's semiconductor industry is experiencing unprecedented suppression, and the lack of key core technologies has led to a threat to economic development.

**Keywords:** цифровая экономика; полупроводниковая промышленность; цифровая трансформация; импортозамещение.

## **ЦИФРОВАЯ ЭКОНОМИКА И ИМПОРТОЗАМЕЩЕНИЕ ОТЕЧЕСТВЕННЫХ МИКРОСХЕМ**

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Достижения в области цифровых технологий способствуют цифровой трансформации китайских предприятий, однако за открывающимися возможностями скрывается кризис. Истоки цифровой экономики Китая нестабильны, высокотехнологичная отрасль, представленная китайской полупроводниковой промышленностью, переживает беспрецедентное подавление, а отсутствие ключевых базовых технологий создает угрозу экономическому развитию.

**Ключевые слова:** цифровая трансформация; цифровые технологии; цифровая сервисная экономика; интеллектуальное производство; цифровая платформа.

## **Introduction**

Driven by the new round of industrial science and technology revolution and industrial change, China's digital industry is booming, but at the same time, China's high-tech industry, represented by the semiconductor industry, is also facing great challenges and opportunities. As the world's largest chip importer and consumer market, China's chips, however, are highly dependent on imports.<sup>20</sup> Since 2020, the U.S.-China trade conflict and the global chip shortage crisis have had a far-reaching impact on China's semiconductor industry, and there has been a growing call for domestic chip substitution.

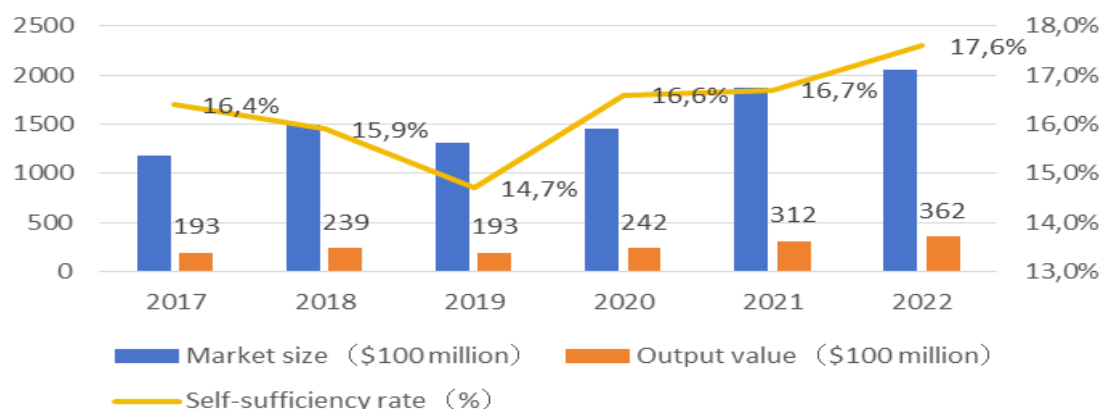
### **Status of China's digital economy development**

With the in-depth development of China's economic modernization, the digital economy has become an important support for the development of China's modern economy, the scale of China's digital economy in 2022 has reached 50.2 trillion-yuan, accounting for 41.5 % of gross domestic product, with a nominal growth rate of 10.3 %, and China's digital industry maintains a high average annual growth rate of 15 %. The steady development of the digital industry not only promotes the progress of technology, but also promotes the process of manufacturing servicization, and drives the improvement of enterprise innovation ability.

### **Import substitution and the digital economy**

The digital economy can effectively overcome the information barriers in international trade, significantly reduce the trade costs of economic activities, and promote trade growth through technological innovation [1]. In 2022, China's digital industry is dominated by the electronic information manufacturing industry and the software industry, and its output value will reach 15.4 trillion yuan and 10.81 trillion yuan, respectively, which will come to a huge demand for China's semiconductor industry upstream and downstream enterprises.

The development of digital economy cannot be separated from semiconductor technology as a foundation, emerging demand will stimulate China's semiconductor industry to accelerate domestic substitution. However, according to Figure 1, China's microchip self-sufficiency level is still low, with a large trade deficit, and at the same time, due to the current technology blockade faced cannot be lifted in a short period of time, to strengthen the import substitution of domestically produced chips is to ensure that the development of China's digital economy is a security guarantee. As the largest market in the global chip market, China has formed a complete semiconductor industry chain [2]. However, how to enhance the competitive advantage of local enterprises in the international market, realize the import substitution of key core technologies, and move upstream of the industrial chain is the main challenge China is currently facing.



China semiconductor chip market size, output value and self-sufficiency rate, 2017–2022

*Source:* according to the McLean 2023 report, the self-sufficiency rate is calculated based on the ratio of production value to market size.

## Conclusion

The rapid development of the digital economy industry needs the import substitution of the semiconductor industry as a guarantee of technological security, China should continue to increase the semiconductor industry as the representative of the high-tech industry investment, be vigilant about the hollowing out of the industry, and overcome the key core technologies, while replacing trade confrontation with technological exchanges and cooperation, and minimizing the resistance to development as much as possible.

## References

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