

# Intelligent Development Trend of Modern Wireless Communication Technology

Jianbo Shang

School of Intelligent Manufacturing, Linyi Vocational University of Science and Technology,  
Linyi, Shandong, China

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**Abstract:** With the development of science and technology, China's wireless communication technology has made great progress, especially in recent years, the improvement of wireless communication products has provided convenient conditions for people's life. With the rapid development of current intelligent technology, the intelligent development trend of modern wireless communication technology is more obvious. The effective integration of wireless communication technology and intelligent technology can create a better communication environment and ensure people's work and life. Therefore, in the current development of wireless communication technology, it is necessary to analyze its development process and current situation, grasp its intelligent development trend, promote the development of wireless communication technology, and provide convenient conditions for people's life and work.

## 1. Introduction

With the rapid development of science and technology in China, wireless communication technology should also keep pace with the times. By transforming the traditional wired communication technology into wireless communication, and then further improving the wireless communication technology, China will realize modern wireless mobile communication and achieve the purpose of improving communication efficiency and convenient life. As the most important technology in the current information age, wireless communication technology can not only realize the efficient transmission of information, but also meet the convenient needs of people in life. With the wide application and construction of intelligent devices in all walks of life and people's lives, wireless communication technology gradually begins to develop in the direction of intelligence. It can not only improve the space and time constraints of traditional wired communication technology, but also realize network connection only through intelligent mobile devices. Therefore, it is very necessary to realize the intellectualization of modern wireless communication technology.

## 2. Development History and Current Situation of Modern Wireless Communication Technology

Scientists have developed a new communication method, namely wireless communication technology, by using the characteristic that electromagnetic wave information will not be bound in free space. The development characteristics of this technology can be summarized into two kinds. First, although the overall growth rate of public communications is relatively fast, there is an imbalance in the development level of various regions. In some economically developed areas, the penetration rate of mobile communication has reached a high level. The corresponding annual growth of new mobile users has shown a downward trend year by year. In economically developing regions and economically backward regions, the annual growth of new users has shown a momentum of rapid growth. However, in terms of the average income index of individual users, the ARPU value of developing countries is relatively low. At the same time, regions with rapid growth of new data services have become the new focus of global communication development. Second, the technical level of wireless broadband communication has been continuously improved. With the increasing popularity of public mobile communication, the research on broadband wireless access technology is also increasing. This technology shows a diversified development trend. The birth of

new technologies such as “UWB technology” and “WLAN technology” has effectively promoted the development of wireless communication industry.

## 2.1. Development History

With the development of information society, wireless communication technology not only meets the necessary needs of people’s daily life, but also more in line with the needs of information society. The development of wireless communication technology can be roughly divided into the following three stages. The first stage is the start of wireless communication technology. Before the 1950s, wireless communication technology was mainly to meet the needs of the army. At that time, when the level of social science and technology was insufficient, there were great limitations on the production and application of wireless communication technology, and the use results did not reach the transmission speed envisaged at the time of production. The second stage is the development of wireless communication technology. From the 1950s to 1990s, people have gradually accepted the existence of wireless communication technology applications, began to gradually add network technology to traditional industries, promoted the development of science and technology, and began to develop and produce the first batch of digital mobile phones, realizing the sustainability and stability of wireless communication technology data. The third stage is the rise of wireless communication technology. After the 1990s, wireless communication technology has begun to rise and integrate into all aspects of society, playing an important role in people’s daily life. The new generation of communication equipment is more in line with people’s requirements for wireless communication technology. With the global standardization of wireless communication technology standards, wireless communication technology began to carry more life functions. In the case of constantly putting forward requirements and constantly improving requirements, there is still much room for progress in wireless communication technology.

## 2.2. Development Status

### 2.2.1. Mobile communication technology field

In the past decade, China has accelerated the upgrading of mobile communication technology, especially in 4G and 5G technology, and 5g is even in the leading position in the world. From the current relatively perfect 4G technology, many application platforms have been derived and widely used in people’s daily life. At present, 4G has been popularized among mobile network users in China. With the beginning of 5G business, the number of 5g users is also increasing, which means that China’s wireless communication technology has entered a world leading situation.

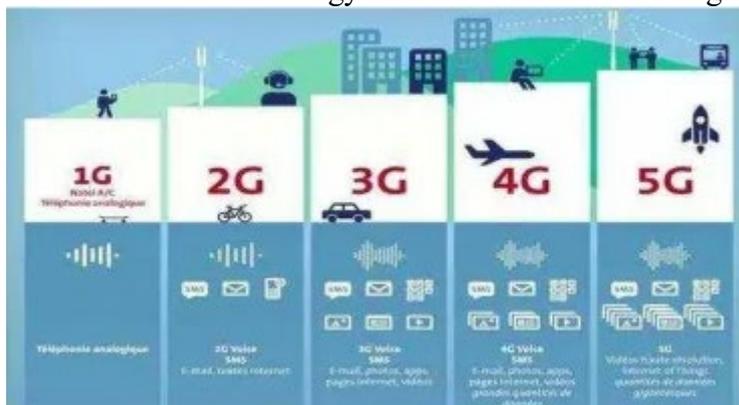


Figure 1 Development of mobile communication technology

### 2.2.2. Bluetooth Technology Field

Bluetooth technology plays a key role in the development of wireless communication technology. By virtue of the advantages of Bluetooth technology in short-distance transmission, it provides more convenient conditions for people’s life. From the current Bluetooth wireless communication technology, the transmission distance is relatively short, which can meet people’s communication needs in short distance. When using Bluetooth, it can realize the transmission of data and voice with

the help of information conversion technology. In terms of transmission distance of Bluetooth technology, it is generally about 10 meters, while in terms of frequency band, it is generally 2.4GHz, which has more obvious advantages in short-distance communication.

### **2.2.3. Wireless broadband technology**

In the current communication industry, wireless broadband technology has formed a relatively complete technical system, including satellite intervention technology, multipoint microwave access technology, microblogging broadband access technology, infrared optical communication access technology, etc. For multi-point microwave access technology, it has been widely used in many low-frequency bands, but it also shows great limitations, making its application scope relatively small. For the infrared optical communication intervention technology, its transmission speed is higher, and the impact on other communication systems is relatively small. Satellite access technology is more applied in education, finance, real estate and other fields, and with its own stability and reliability, it has promoted the healthy and stable development of these industries. In terms of microwave broadband intervention technology, its frequency band is generally maintained at about 28GHz, which can effectively control the loss in the transmission link and build a two-way transmission channel in a short distance.

### **2.2.4. Ultra Wideband Technology**

For ultra wideband technology, it refers to a wireless access technology with ultra-high transmission rate, which has relatively low transmission consumption and strong cost control ability. From the development of wireless communication technology at this stage, among different UWB technologies, wireless carrier will not be used, but non sinusoidal wave carrier will be used to transmit the signal in the form of 0 and 1 with the help of pulse. With the application of ultra wideband technology, it can broaden the coverage spectrum, reduce the effect in transmission, and have a wider application range. It meets the development needs of different industries, meets people's work and life requirements, and provides a reliable guarantee for social development.

## **3. Intelligent Development Trend of Wireless Communication Technology**

With the rapid development of wireless communication technology, intelligence has become an inevitable trend. From the perspective of its current development, the integration of wireless communication technology and intelligent technology continues to improve. This has injected new vitality into the development of the communication industry and provided convenient conditions for people's work and life.

### **3.1. Continuous Integration of Technology**

Judging from the current development of radio communication technology, the integration of wireless technology and cellular technology is constantly improving. Through the effective integration of the two, it can improve its own technical functions and system detection functions, broaden its application scope in the field of electronic products, and realize the diversified development of wireless communication technology. In the future development of communication technology, the integration of wireless broadband access technology and mobile communication technology can provide a reliable guarantee for its development. With the development of broadband market, the level of various broadband access technologies is also improving, especially for wireless technology, which provides a necessary bridge for the integration of business communication and broadband technology. After the integration of multimedia technology and wireless communication technology, multimedia technology can be more widely used in the field of production and life, and make greater contributions to social development.

### **3.2. Faster Upgrading**

After entering the 21st century, the updating speed of various high and new technologies is getting faster and faster, and the same is true of wireless communication technology. In order to

better meet the current living and production needs of people and promote the rapid and stable development of wireless communication technology, the country must speed up the innovation of wireless communication technology and make greater contributions to social development. In the current development of all walks of life, the application of various high and new technologies not only promotes the improvement of social productivity, but also provides convenient conditions for people's life. With the wide application of intelligent technology, the research and innovation of wireless communication technology also need to be accelerated. By increasing investment and strengthening the research on market demand, we can meet the development needs of different industries and promote the improvement of social productivity.

### **3.3. Optimization of Internal Structure of Wireless Communication Technology**

In promoting the intelligent development of wireless communication technology, its internal structure must be transformed and improved to achieve the improvement of operation efficiency. In the traditional wireless communication network, it has been difficult to adapt to the current high-speed, high-capacity network operation needs. We must optimize its own internal structure, give full play to the advantages of wireless communication technology, and achieve the improvement of its application efficiency. In this process, we need to constantly explore and study this technology, and expand the application range of wireless communication by adding frequency band communication technology.

### **3.4. Transformation of wireless communication pattern**

In the current development of society, in order to better improve its intelligent level, wireless communication technology must develop towards integration, integration, broadband and diversification to meet the needs of work and life. By analyzing the development trend of mobile communication technology at this stage, LTE technology has become a mainstream development direction, providing a reliable guarantee for the full coverage of mobile networks. In the specific application link, we should give play to the advantages of various broadband access technologies. For areas that cannot be covered by broadband access technology, we need to use mobile communication networks to make necessary supplements.

## **4. Conclusion**

To sum up, the development of modern communication technology can not only improve people's lives, but also play a vital role in China's economic development. Wireless communication technology is usually used together with mobile devices to realize wireless mobile communication technology, and its intelligent development has changed people's lives. The intelligent development of wireless communication technology has become an inevitable requirement of the development of today's era. In recent years, China has conducted in-depth research on wireless communication technology, and finally made a major breakthrough in 5G communication technology. The intelligent development of modern wireless communication technology can not only effectively improve the stability and transmission speed of communication technology in the process of information transmission, but also greatly improve the security of communication technology. China should continue to take the intelligent development of wireless communication technology as the premise, increase the construction of wireless communication technology, so that wireless communication technology can be further developed, and realize the intelligent development of modern wireless communication technology as soon as possible.

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