

## Original Research Article

# On the Relationship between Internet and Traditional Communication Industry

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### ABSTRACT

China's history and culture are long. It is the famous state of etiquette. People through a certain form of rituals and a certain way of cultural activities to carry out their thoughts and feelings. In real life, everyone often uses a series of applications such as traditional letters, business cards, stickers, announcements, essay inscriptions, couplets, modern such as telegraph, fax, express mail, e-mail and so on. These applications include rich ritual content, with a strong cultural color of the Chinese nation. From the earliest Pigeon biography to today's videophone, the traditional communications industry has a complex development process. At different times have different roles, and also has a lot of convenience and inconvenience. Because of this inconvenience, Internet in real life is more widely used, so to a certain extent make up for this shortcoming, this article will focus on the Internet and traditional communications industry in order to explore the relationship between both and the future development trend.

**KEYWORDS:** Internet traditional communication industry resource relationship

## 1. Internet-related information

### 1.1. Internet generation

Internet first came from ARPANet, a former ARPA established by the Defense Advanced Research Projects Agency of the US Department of Defense's Advanced Research Projects Agency; which was put into use in 1969. Since 1960s, ARPA has begun to fund the Department of Computer Science and some private limited companies in the United States to promote research on computer networks based on packet switching technology. In 1968, ARPA set up the ARPANet network project. The project based on a dominant idea: the network must be able to withstand the test of failure and maintain normal work. In the event of war, when a part of the network loses their ability to work due to attack, the rest of the network should be able to maintain normal communication. Initially, ARPANet was primarily used for military research purposes and it had five characteristics:

1. Support resource sharing
2. The use of distributed control technology
3. Using packet switching technology
4. The use of communications control processor
5. The use of hierarchical network communication protocol

From the 1960s, the US Department of Defense's Advanced Research Projects Agency (ARPA) established Arpa ARPANet to fund US universities and companies to facilitate the study of computer networks and packet switching technologies. In December 1969, ARPANet put into operation and built an experimental network connected by four nodes. By 1983, ARPANet had connected more than 300 computers for use by US research institutes and government agencies. In 1983, ARPANet is divided into ARPANet and military MILNET (Military Network), both networks can communicate and resource sharing. Because both networks are interconnected by many networks, so they are called the Internet, ARPANet is the predecessor of the Internet.

## **1.2. The modern development of the Internet**

With the construction and opening of NSFnet, the number of network nodes and the number of users increased rapidly. The United States as the center of the Internet network also rapid develops to the global development. Many countries in the world have access to the Internet, so that the network traffic increased dramatically. In 1992, there are more than 1 million hosts on the Internet. In 1993, the Internet backbone rate increased to 45Mbps. In 1996, the rate of 155Mbps backbone was built. In 1999, MCI and WorldCom increased the US Internet backbone rate to 2.5Gbps. At the end of 1999, the number of registered hosts on the Internet has exceeded 10 million units. The rapid development of the Internet began in the 1990s. The WWW, which is developed by the European Nuclear Research Organization (CERN), is widely used on the Internet. Its greatly facilitates the use of the network by a large number of non-network professionals, making it the main driver of exponential growth in Internet development. The number of WWW sites also increased dramatically, with only 627 by the end of 1993, more than 10,000 by the end of 1994, more than 600,000 by the end of 1996, more than 1.6 million by the end of 1997, and more than 9.5 million by the end of 1999, with the number of Internet users more than 200 million. Internet data traffic increased by about 10% per month, the Internet is developing very rapidly. It is predicted that by 2002, the global Internet users will reach 450 million. To the development of China's Internet, for example, as of July 2001, the number of Internet computers has reached about 1002 million units and the number of Internet users about 26.5 million people. CN registered domain name has reached nearly 130,000 and WWW site has reached 240,000.

## **1.3. The Internet today**

Over the past decade, with the development of social science and technology, culture and economy, especially the development of computer network technology and communication technology, with the human society from the industrial society to the information society, the trend is more and more obvious, people's awareness of information. The development and use of information resources, more and more attention, which are strongly stimulated the development of ARPAnet and NSFnet, so that the two networks of the host and the number of users increased dramatically. In 1988, NSFnet connected to the number of computers increased to 56,000 units and then each year increase to 2 to 3 times. In 1994, the number of hosts on the Internet reached 3.2 million units, connecting the world's 35,000 computer networks. Now, the Internet has more than 50 million users and growing 10-15% per month. Experts predict that by 1998, the Internet users will exceed 100 million. In 2000, the world will have more than 100 million networks, 100 million hosts and more than 1 billion users.

Today's Internet is no longer a field of computer science and military research, but has become a development and use of information resources to cover the global information of the ocean. In the Internet, according to the business category, including advertising companies, airlines, agricultural production companies, art, navigation equipment, bookstores, chemical, communications, computer, consulting, entertainment, finance and trade, all kinds of shops, hotels; covering all aspects of social life and constitute a microcosm of the information society. In 1995, the Internet began to scale applications in the commercial field. That year, the total revenue of Internet business in the United States was \$ 1 billion and is expected to reach \$ 1.8 billion in 1996. Suppliers who provided online services also developed from computer companies such as America Online and ProdigyService to communications operators such as AT&T, MCI, Pacific Bell, and others.

Today, the Internet has connected to more than 60,000 networks and 86 countries. E-mail can reach more than 150 countries and more than 480 million hosts connected through it. The user has more than 2500 million and the daily flow of information reached one trillion Bit (terrabyte) above. In addition, the monthly e-mail broke through 1 billion. At the same time, the Internet application industry penetrated into various fields, from academic research to stock trading, from school education to entertainment games, from online information retrieval to online home shopping; have made great progress. According to statistics, the current distribution of Internet domain names; which is the largest proportion of business, has 41%; edu - (science and education) has been relegated to the second line, occupies 30% share. Last year in the growth of the Internet, business sector accounted for 75% of the growth.

## **1.4. The future of the Internet**

From the current situation, the Internet market still has great potential for development. The future of its application will cover from the sharing information in office to marketing, services and other fields. In addition, the electronic trade is changing the traditional model of today's business activities. Its convenient and extensive interconnection will have an impact on all aspects of future social life. However, the Internet also has its disadvantages, such as the lack of overall planning and design of the network, unclear of network topology and fault-tolerant and lack of reliability. These are critical to many applications in the business. Security issues are another major factor that plagues Internet users. Although there are a lot of programs and protocols to ensure the reliable conduct of online business transactions on the Internet, it is unclear that the technology and products that really apply and dominate the market are still unclear. In

addition, the Internet is a centerless network. All these problems hindered the development of the Internet, the Internet can be improved after these problems solved.

The future internet can be quite different from the current internet and it can become very powerful. When you want to bring it around, you do not have to carry a large bag and you can make it smaller, put it into your own pockets. You can open the Internet in anytime and in anywhere, which can help you search for the information that you need. Beside current functions, it also increased the thousands of the new functions, such as: 'real mirror' that can travel anywhere, you can play the 'simulation piano', 'Ma Lang pen' that can make picture to physical thing, and change to a robot with 'change process'. All right, let's talk about 'real mirror' this procedure! Open the Internet, you can see a mirror on the desktop icon, double click on the icon and you can see a full screen display of large mirrors. There are texts to remind you: 'you want to go to the country or city name into the mirror. 'You can just key in the name of the place that you want to enter and then click next to the' OK 'button on it. At this point you will feel the body floating, feet left the ground, quickly flew to the place that you want to go.

The future of the Internet will has a lot of unique features, it can be automatic alarm. When your family has a thief swoop, the Internet will immediately respond to the deafening sound then you will immediately wake up from sleep, so that thieves cannot succeed. Through the Internet, you can figure out the history of fifty thousand years, but not necessarily able to know the next 50 years of things. However, there is one thing that it is certain: the Internet will be more and more powerful.

### 1.5. The function of the Internet

Internet has a wealth of information resources; we can easily seek through the Internet a variety of information. We can seek information from two sources: people and computer systems. By the Internet you can find people who can provide a variety of information: educators, scientists, engineering and technical experts, doctors, nutritionists, students, and a variety of expertise and hobbies. The Internet provides a platform to discuss and communicate with others in the same situation. In fact, almost all of the possible problems can be found in the discussion and exchange of the group. When there is no such discussion group, we can build one for ourselves.

Internet computer storage information is merged into the information resources of the ocean. Information content is all-encompassing: there are a variety of disciplines of professional information, but also with the daily work and life is closely related to the information. It has information of serious topic, sports, entertainment, tourism, recreation and anecdotal; historical information, but also real-world information; knowledge and educational information, but also news and news media information; academic, educational, industrial and cultural aspects of information, but also economic, financial and business information and so on. The carrier of information involves almost all media, such as documents, tables, graphics, images, sounds, and their synthesis. The information capacity is as small as a few lines of characters and as big as a library. Information is distributed across computers on a variety of possible forms, such as documents, databases, bulletin boards, catalog documents, and hypertext documents. The information is constantly updating and changing. It can be said that here is an inexhaustible treasure trove.

Another resource of the Internet is the computer system resources, including the processing of the computer on various networks connected to the Internet, storage space (hardware resources), software tools and software environment (software resources). In general, Internet users who require a computer system, such as a scientist, engineer, designer, teacher, student, or every ordinary user; can log in to a target computer as long as the computer allows you to use and build your login account. You can use them like your own computer! When you enter the Internet, you can use the various networks and variety resources of computers to communicate and exchange information with people around the world. Besides that, you can enjoy various services of the Internet to do a variety of things.

### 1.6. The application of the Internet

1. Send an e-mail, which is the earliest and most extensive network application. Because of its low cost, fast and convenient features, it shortens the distance between people. Regardless of information exchange of friends in a foreign country or job related discussion; it is as easy as chatting with neighbors. So, the Earth Village is not unreasonable.

2. The extensive application of the network will create a digital life and work, called SOHO (small home office) way. The family will no longer be just an isolated unit of human social life, but a vibrant cell in the information society.

3. Surf the Internet or surf, this is the network to provide the most basic services. You can visit any website with the internet according to your interest from the online tour. So, you can stay at home to know the world.

4. Query information. Using the network which is the world's largest database, you can use some search information for the search engine from the vast information database in order to find the information you need. With the development of China's 'government Internet' project, people's daily things can be completed on the network.

5. e-commerce is the consumer using online shopping for consumer behavior. Shopping with the network is built in the virtual digital space; it uses the Web and multimedia features to display goods and to enhance the visibility of goods and selectivity. Although the current online shopping is not perfect, it will not replace the traditional way of shopping and it is replenish. It has been come to our real life and gives us more choice of life.

6. Enrich people's leisure lifestyle. Leisure activities, namely non-professional labor activities, which include: recreational activities such as listening to music, watching movies, television, dancing, to participate in sports activities; development activities include learning cultural knowledge, participation in social activities, engaged in artistic creation and scientific invention activities and so on. But the direct relationship with the network of leisure life generally includes leisure education, leisure and leisure activities.

7. With more and more common network in people's lives, everyone can make a new friend all around the world through the Internet. They can exchange of ideas together.

8. Other applications. The online version of human activity such as online on demand, online stocks, online job, art exhibition and so on.

What will be developed for the future Internet? This problem is too difficult; it needs creativity, imagination and courage to practice the courage. I only thought of one word: engine. It may be development of the engine for all walks of life, different kinds of people and all sectors; it will bring human society into a new digital historical stage. The Internet has evolved into the driving force and new engine of the information economy, evolving into a bulldozer that reduces costs, increases productivity and paves the way for new jobs.

In the future, high-speed network connection and Internet connection will be common standards; it can be everywhere. We will have incredible network connection speed and high-speed network connection will be all over the various environments at the home and office. The network will completely restrict our work, life and entertainment. I believe that the application of the network will be the same as the speed of the number of Internet users, such as mushrooming endless, with each passing day. With the popularize of the Internet in the world and its wide range of applications in various fields, the era of geography-based division and monopoly of the country and enterprise groups will gradually be broken. The face of a unified global market, the economy will achieve globalization. At present the most prominent is the network environment under the economic model - e-commerce. If the initial development of the Internet is only in the huge information communication network on the side of a landscape, now the Internet has become the industry's biggest bright spot. From another point of view, the rise of the Internet not only the traditional information and communication industry has encountered unprecedented challenges, more entire industry to the comprehensive information service transformation process pointed out the direction. Therefore, we believe that the traditional communication transformation is a transformation of the context in the Internet era. We cannot avoid the Internet in the world has become a trend, on the other hand we have to learn from the successful development of the Internet; to learn more and more abundant nutrition. It combined with the advantages of traditional telecommunications, to find a new way to reverse the situation. This may be the traditional communications industry in the Internet era is facing the biggest issue. Sometimes ago, sponsored by the China Communications Institute Information and Communication Technology Network, Shanghai Bell Alcatel-Lucent company to support the China Communications Society Information and Communication Network Technology Committee in 2007 annual meeting; from different areas of well-known experts like Wei Leping, Du Baichuan, Hou Bai Chuan and Jiang Lintao on this subject launched an in-depth discussion. Experts from different perspectives on the current development of information and communication network views and views. Experts believe that integration is the inevitable trend of the development of information and communication industry and the Internet in promoting social information has made tremendous contributions to the information and communication network only to adapt to the development trend of the Internet to meet the market demand brought about by the Internet in order to reverse the current slowdown the momentum to the new stage of historical development.

## **2. The traditional information and communication industry**

### **2.1. The classification of traditional communications industry**

Traditional communications industry is divided into the following aspects: letters, fax, fixed telephone, telegraph, greeting cards, car radio, magnetic phone, video phone, registered letter and express delivery industry.

### **2.2. The advantages and disadvantages of traditional communications industry**

China's history and culture is long. It is the famous state of etiquette. People through a certain form of rituals and a certain way of cultural activities to carry out their thoughts and feelings. In real life, everyone often uses a series of applications such as traditional letters, business cards, stickers, announcements, essay inscriptions, couplets, modern such as telegraph, fax, express mail, e-mail and so on. These applications include rich ritual content, with a strong cultural of the Chinese nation.

From the earliest Pigeon biography until today's videophone, the traditional communications industry has a complex development process. At different times have different roles but also has a lot of convenience and inconvenience. For example like letters, the feudal society period of the letter, because there is no fixed government and individual departments to be responsible for the letter industry, so called: send a letter. This means that if your family has something happen, you need to let family from thousands of kilometers away to know, under normal circumstances only such a way: write a letter, find a person passing by to help you to send. This method is good for generally letter because you are not rushing. But if you encounter more urgent things need to discuss and the time is uncertain, it sometimes take a month, as many as a year or two, and so on. In additional, you need to wait for the information to send back again, I am afraid nothing can catch up.

The early ruling class had a certain privilege, with a posture in a remote area, a strong sergeant, a strong horsepower, what could be used to report to the parties that we often said, 'there was no more Email, telephone convenience, not to mention the ruling class are so ordinary people not to mention. Nevertheless, the traditional communications industry for the development of modern communications industry has provided great help, in other words, the development of modern Internet, from a certain point of view is an extension of the traditional communications industry.

### **3. The relationship between Internet and traditional communications industry**

#### **3.1. Internet development so far is the inevitable product of the development of traditional communications industry**

#### **3.2. Internet and traditional communications industry in today's society should be sub-severity, while the development**

In the view of China and the global economic development imbalance, the Internet cannot be all over the world every corner, so in some no conditions or the economy is not very developed areas, the traditional communications industry has maintained a certain advantage. At the same, more developed in the economy of the region, should speed up the development of the Internet, give full play and continue to expand the Internet to facilitate the advantages of privacy.

#### **3.3. Integration is the inevitable choice for the development of information and communication industry**

In recent years, the industry has been discussing convergence, involving a lot of fusion concepts; including fixed and mobile convergence (FMC), triple play and so on. Among them, IPTV is a triple play of the typical business. It has been the focus of attention of the industry topic. Especially in the context of triple play has become a national strategy, the industry began to focus on how to effectively promote the triple play, choose what kind of business as a starting point and other issues. China Telecom chief engineer, China Communications Society Information and Communication Network Technology Committee Director Wei Leping expressed their views on this.

Wei Leping believes that it is not easy to create a converged and effective business model. So no operating IP, simple low-cost operation of radio and television, complex high-cost operation of telecommunications, how to learn from each other? Wei Leping proposed to create a smooth integration of the new industrial chain is not easy, neither side can completely control the entire industry chain, the new industry chain needs to explore the formation of development, and ultimately should win. Connectivity is the basic attribute of most profitable business, while the content of the business to eat bandwidth, but the ability to generate income is weak, people are accustomed to the connection business to pay the money much higher than the content of business, and thus from the profit point of view, 'Content is king' argument is questionable, do a good job of all kinds of connected services is the key to the success of IPTV. Wei Leping pointed out that IPTV network transmission business is fully open time is becoming more and more mature.

For the relationship between integration and traditional communication reform, Wei Leping believes that integration is both the natural needs of economies of scale, but also user needs; integration is the industry structure of the challenges of business, integration needs to reflect on regulatory policy and adjustment, telecommunications and radio and television. The symmetric business access is the first step in large convergence. If the triple play is not only to solve the technical problems, network transformation, but also to solve the policy problem. Then the information and communication industry, the main issue is how to deal with the relationship between the Internet and telecommunications networks, it is independent or integration. Ministry of Information Industry Telecommunication Research Institute chief engineer Jiang Lintao that the Internet and telecommunications networks will be to integration.

Jiang Lintao believe that the positive significance of the Internet is to greatly promote the popularity of social information, while breaking the monopoly of traditional communications, accelerate the development of information technology in the information industry. Its innovative business has hundreds of millions of users benefit. The



establishment of the information communicates all IP technology direction because of the successful of the internet. With the Internet as a new media role and increasingly influence, the Internet not only become the main way to get news information, with Web2.0 and P2P, user can become a channel for information dissemination. The Internet information is increasing, become more and more convenient and the information dissemination is more and more simple; information manufacturing, the spread of the price is getting lower and lower. Jiang Lintao pointed out that with the continuous development of the Internet business, the rapid development of applications, 'user self-discipline principle' has been completely destroyed, predatory consumption of resources is growing, especially P2P technology widely used, users in order to improve and improve Its own user experience, unrestrained looting and control of the network resources, making the Internet network operators (IP network operators) and the operators of the Internet business harmony, coexistence relationship has changed, between the two The conflict is increasing. The business network has a tendency to develop from benign parasites to vicious parasites.

Jiang Lintao believes that the Internet as a heterogeneous technology into the telecommunications sector, it does not need to follow the traditional communication standards of all rules and regulations. With this new idea, it solves the most basic communication problems; the Internet broke the traditional telecommunication of several monopoly situations. The situation has greatly accelerated the application of new technologies to promote the development of technology. At the same time, both in business, or in terms of technology, telecommunications networks are the strong impact of the Internet, had a very far-reaching impact.

Taking into account the technical impact of the Internet and its own shortcomings, Jiang Lintao believes that the next generation bearer network should be a secure and trusted network. It can carry the current telecommunications network and the Internet's entire business. The foreseeable future development of new business and can guarantee the ability to meet the requirements of the quality of service capacity, network resources can be known, controllable, manageable, network can be run, scalable, can coexist with existing networks, interoperability and smooth transition. For the future development of the Internet and traditional communications trends, Jiang Lintao believes that the Internet and traditional communications will be towards integration, which will be integrated network and business network will be diversified. Jiang Lin Tao pointed out that the Internet and traditional communications have their own advantages and disadvantages. In fact, learn from each other. Both networks are based on IP technology, business convergence and overlap each other. The inevitable result of the development of the two networks, of course, will not be simple to the current Internet, nor is it one to the present of the traditional communications and will be unified to the next generation of IP technology based on the network.

In short, the Internet and the traditional communication should be the same time. In different areas focus on development, complement each other, learn from each other. In addition, the global economy should also move in the direction of balanced development, so that the Internet is convenient and fast modern communication means all around the world.

## **References**

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1. (US) Kemo, Lan Xiaofeng translation, 'internet technology foundation', 2003;
2. Zhang Yan, 'network management and maintenance master', 2008;
3. Xu Jingdong, Zhang Jianzhong, 'Internet (Internet) tutorial', 2004;
4. Shen Subin, 'Network Security Principles and Applications', 2005;
5. Heilin, 'strategic management of technological innovation', 2001;
6. (English) David Lee, 'get more profits', 20