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Essentials

THE INTERNET IN

China

1980s–2000s

Cultural, Political, and Social Dimensions

网络在中国：从文化，政治和社会视角看中国互联网

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Table of Contents

Part 4: Society and Social Welfare

Introduction

The Internet in China: Cultural, Political, and Social Dimensions

By 2010, more people from the People's Republic of China (PRC) were using the variety of technologies collectively referred to as the "Internet" than from any other nation. This was certainly a remarkable development, as the rise of the Internet corresponded with the "rise of China" to a remarkable degree. In the late 1980s, throughout China, few people had access to a computer, and access to the few that were available was tightly controlled. This was not all that remarkable. In the United States and Europe, few university students owned personal computers (PCs) at that time. In China, however, even telephones were rare; few Chinese people had access to them, let alone access to international data networks. That would all change.

The Internet became available in China in 1994–1995, first for scholarly use, then for popular use. At the time, there was little sense of how the technology would evolve, and how it might transform Chinese culture, society, economics, and politics. Within China, however, the expectations of the governmental ministries involved focused largely on the potential economic benefits of the new technology, associating the Internet with the next phase of modernization. A different set of expectations came to the fore in the West, as scholars, business strategists, and policy makers voiced expectations that the Internet would contribute to the ongoing "opening" initiatives within China, thereby transforming Chinese politics and markets, and removing social and cultural constraints.

At the time of this writing, the impact of the Internet on China, as well as the impact of China on the Internet, is far more complicated than it was in the early days. Contrary to the assumptions of many that the Chinese government would "resist the Internet" or limit its popularization, as was the case in such Communist Party–led countries as Cuba and North Korea, all aspects of the Internet have been thoroughly and completely embraced by every element of Chinese society. China is not only awash in PCs but in millions of other devices as well. In 2005, the Chinese corporation Lenovo bought out IBM's personal computer division—one of the giants in the industry—and practically overnight became the world's third-largest computer manufacturer. China is where many of the devices

that are contributing to the increasingly rapid worldwide development of mobile computing devices, such as the iPhone and the iPad, are both designed and manufactured.

Not all of those devices are being shipped out for overseas consumption, as is the case with many Chinese products: as of 2013, China had well over half a billion Internet users and more than a billion mobile phone users, as well as the largest market in the world for iOS and Android activations. In addition, there are over a quarter of a billion users of Sina Weibo, China's most popular microblogging service, and Tencent QQ (instant-messaging software) has another 194 million monthly users. China's online population is now larger than the total population of every other individual country in the world except for India's.

Obviously, this rapid technological diffusion, and the accompanying social, economic, and cultural changes, has made understanding China's relationship with the Internet, and the reciprocal influence of the Internet on the nation, a very challenging task. Understanding those changes is critical, however, for scholars and academics researching the role of the Internet and associated technologies on society, as well as for businesses, entrepreneurs, and consultants, all of whom are concerned with determining market trends and making appropriate investments. Finally, understanding this relationship is critical for policy makers, both Chinese and foreign, who are attempting to strengthen the possibilities for the technologies to enhance economic growth and development. While these policy makers also aim to enrich China's political and cultural spheres through the spread of this technology, they are also concerned with political or social unrest, and with avoiding the potential negative social, emotional, and relational consequences of the new technology, such as Internet addiction and related maladies.

This project began in 2010 as an attempt to highlight some of the mileposts on the development of the Internet in China. But, as with all efforts to document the rapid development of such a transformative medium, there will inevitably be gaps in coverage and differences of perspective. Although a number of scholars have written detailed analyses elsewhere of many of the issues and events considered in this volume, *The Internet in China* covers a wider variety of important issues than any other book. It provides an essential framework to better understand the results of years of research on the origins, growth, development, and consequences of China's Internet. The volume's contributors, top scholars from around the globe, place at your fingertips the collective wisdom of two decades of research on the Internet in China.

Our editorial goals for this volume have been to provide a detailed overview of many of the key aspects of the development of, and the technological and social phenomenon associated with, the Internet in China, made relevant to a general audience. We have not sought to provide either a "snapshot" of the world in 2014, nor to write the "definitive" history and analysis of the Internet in China. (The latter would most certainly be an impossible task: it would be out of date as soon as the first word was written.) Rather, we have aimed to capture the key elements of the Internet's diffusion and impact in China. Of course, any observer will emphasize certain elements and de-emphasize others, and since this volume has been conceptualized and created by

social scientists, it will become immediately clear that we have neglected the "technical" aspects of Internet diffusion to focus primarily on the social, educational, cultural, and political. Likewise, we have paid less attention to the economic and business uses of the Internet, although we have tried in this volume to capture at least some of the interaction between commerce, industrial practice, online activity, and economics.

A second key goal has been to include information that has "persistence," that is, information that is not immediately outdated but will continue to have relevance five, ten, and twenty years into the future—in other words, into a time frame in which we have no idea what the Internet will look like or how it will be used.

It is also appropriate to comment briefly on the boundaries of our coverage. We have deliberately excluded detailed accounts of technological developments, primarily be-

cause the technological development within China is largely shared with the rest of the world and has been considered in detail elsewhere. Instead, we have focused on elements of Internet development, use, and impact that highlight the interaction of Chinese society with the country's technological development, with the aim of illuminating the impact of Internet technologies on the transformation of contemporary China.

Readers who are broadly familiar with the issues and events presented here will have much to gain, as will scholars, policy makers, and others who will find value in this volume's attempts to link the dynamic relationship between Chinese society and new media technologies.

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Part 1
Business and Economics

Internet Service Providers (ISPs)

Hùliánwǎng fúwù gòngyìngshāng　互联网服务提供商

Summary: Internet Service Providers (ISPs) are companies or organizations that provide users with access to the Internet. There are two kinds of ISPs in China: commercial and noncommercial. Both types of ISP play an important role in governing and controlling the content that is accessible (or not) to Internet users in China.

Internet Service Providers (ISP), companies or organizations that provide users access to the Internet, have played an important role in Chinese "informatization" construction (i.e., the dispersal of information across the country) and Internet governance projects. In China, ISPs are regulated by the Ministry of Industry and Information Technology (MIIT). ISPs, however, also serve as regulatory tools for content regulation. This dual function has had a profound impact on China's Internet development.

The earliest network in China was the National Computing and Networking Facility of China (NCFC), funded by the World Bank in 1990 and devised to connect three major universities and research institutions in Beijing—Peking University, Tsinghua University, and the Chinese Academy of Science—to improve their scientific research capabilities. By the end of 1993 the three institutions had constructed their own sub-networks, and the NCFC managed to connect to the US Internet through an international channel in the following year. In 1996, the NCFC was renamed the Chinese Science and Technology Network (CSTNET) and was hosted by the Chinese Academy of Science. The other two components, owned by Peking University and Tsinghua University, were coordinated into a new network called the China Education and Research Network (CERNET), which linked many other universities together and was managed by the education authorities. As scientific research networks developed, commercial businesses also started to show an interest in the Internet. Two Internet nodes opened in Shanghai and Beijing and began to provide Internet access to the public in 1995. At the same time, a national business network called the ChinaNet was under construction by China Telecom. The telecommunication reforms of 1998 indi-

cated a second stage of ISP development, in which telecom companies became legally independent from their political supervisors. According to a decision of the State Council, ChinaNet now belonged to the new China Telecom company.

In a subsequent reform in 2001, ChinaNet was split into two parts in order to promote competition among the existing telecom companies. The southern part remained in the hands of China Telecom and constituted the main body of the present China Telecom network. The northern part was merged with the competitive China Netcom's network, creating a new network, China169.net. Chinagb.net, another earlier core backbone (i.e., principal data route) network that belonged to the former Ministry of Electronics Industry, was also incorporated into China169.net. In addition, four newly established telecom companies—China Mobile, China Unicom, China Tietong, and China Satcom—all built their own commercial Internet backbones and provided access service to the public. Two new noncommercial networks have also been established since 2000, the China International Electronic Commerce Center and the Peoples' Liberation Army (PLA) Headquarters of the Central Staff.

In the telecommunication reform of 2008, in order to establish three big nationwide telecommunication networks and to issue three 3G licenses, the six commercial networks finally merged into three: China Netcom was united with China Unicom to form the new Unicom, the basic telecommunication business of China Satcom was incorporated into China Telecom, and China Mobile absorbed China Tietong. As a result, the ten backbones were reduced to

seven, ending the stage of competition to a certain extent.

Legal Responsibility and Censorship

In China, ISPs have important responsibilities regarding Internet regulation. Both backbone and last-mile (i.e., the final leg of a network that connects to the customer) ISPs are responsible for online content blocking and filtering. At the national backbone level, the state asks its managing agents to apply blocking and filtering technologies to the international gateways to prevent domestic users from visiting certain foreign sites and foreign users from visiting certain domestic sites. Such actions are primarily taken in major cities such as Beijing, Shanghai, and Guangzhou, where most international gateways are located. The set of hardware and software used for blocking and filtering is (informally) known as "The Great Firewall" (GFW, *fánghuǒqiáng* 防火墙). The GFW is capable of scanning each data package passing through the international gateway, and preventing users from visiting politically sensitive sites or content using various measures, including IP blocking, Domain Name System (DNS) filtering and redirecting, URL filtering, packet filtering, and denial of service. A blacklist of sensitive words and phrases is decided on and revised based on the political needs of different central agencies. Renowned sites, especially social networking and user-generated content websites like Wikipedia, YouTube, and Facebook, are always on the blacklist and therefore inaccessible to the Chinese public, because they allegedly contain "harmful information" to

the government that cannot be controlled. The operation of the GFW is confidential and complicated and "netizens" have no way of knowing for certain what sites they are allowed to visit and what information they can obtain. In practice, people are aware of the GFW and bothered by it, although some of them cannot distinguish government manipulation from pure technical mistakes. (For instance, a blocked website will not say, "Sorry, this site is blocked by the government"; it will simply appear that the link is broken.) More and more people, however, have the incentive to browse "across the wall." For these tech-savvy users, it is fairly easy to circumvent the GFW with free proxies (intermediary systems or applications) or software that is readily available on the Internet. Users with little political interest, however, can live quite well with business and entertainment content provided by domestic sites. (The Great Firewall is discussed at more length in this volume, in the article of that name.)

The Golden Shield Project

Many commentators confuse the GFW with China's Golden Shield Project (GSP), and it is helpful to clarify that these are two entirely different projects. While the GFW refers to a set of hardware and software equipped at the international gateways and managed mainly by telecommunication authorities, the GSP is one of the e-government and information highway projects launched in 1993.

The GSP was initiated in 1998 by the Ministry of Public Security (MPS) as part of its informatization project to spread information more uniformly across the country; it was approved by the State Council in 2001. In September of 2003, the GSP was officially recommended across the country; three years later the GSP was put into use nationwide. Its primary goal is to establish a nationwide communication system for the central and local agencies of public security, facilitating their cooperation and sharing of security information. The GSP is built on a set of complicated networks and information systems for the daily operation of the police, such as a special communication system, a population management database, a criminal information center, and more. The establishment of the GSP significantly improves the state's capacity in fighting crime, managing public services, and conducting surveillance.

Local Level

Even if a Chinese netizen gets around the GFW, it is unlikely he or she will spread blacklisted information domestically on a large scale due to the inspection of last-mile ISPs at the local level. While the GFW is directly managed by the central government, domestic practices of Internet censorship lie with local government. Several laws have ruled that ISPs will be held responsible for the information security within their own networks, including keeping the original records of user behaviors and reporting illegal activities to the police, the same obligations websites have. These obligations have elevated the level of self-censorship by ISPs. As in the case of the GFW, local last-mile ISPs apply a blacklist of keywords and websites prescribed by local governments to routers or main nodes covering one or more administrative jurisdictions. Since local blacklists can vary substantially, the self-censorship regime causes

a split-up of the Internet among towns, cities, and provinces. In case of an emergency, provincial governments can order communication networks linked with other provinces to be cut off. Backbone ISPs such as China Telecom also launched an optional "Green Surfing" service, claiming to block certain harmful contents and ports for the protection of minor users.

Content control on the Internet has been a major concern of the Chinese Communist Party (CCP) since the inception of backbone networks. In 1995, there was a debate among the central leaders about whether to build commercial networks and increase the number of users at the expense of information security and social stability. The consensus then was that effective Internet regulations should be promptly established, and that the Internet should be developed at a slower pace. The state subsequently enacted three major regulations, requiring the existing network users (mainly research organizations and companies) to be recorded at local police stations and obliging ISPs to impose self-censorship. Thus, the increase in the number of Internet users was backed up by stricter regulations.

In addition to the state laws and regulations, backbone networks are subjected to different governance structures based on their respective natures. Noncommercial networks (i.e., public service networks) are governed by regulatory authorities (such as the Ministry of Education and the Chinese Academy of Science) that also act as the main content regulators. Due to the relatively small number of users (primarily teachers, researchers, students, and military personnel), it is relatively easy to exert control. By contrast, commercial networks are operated by telecommunication companies and supervised by the telecom agencies of local governments, while the information flowing over the Internet is governed by other special content agencies.

The two distinct patterns of network governance correspond to the government structure of *tiao-kuai* (vertical-horizontal) system in China. On one hand, the *tiao* (vertical) governance of noncommercial networks by the regulatory authorities ensures the exclusive control over their proprietary networks (primarily in the education sector), including content regulation and technical maintenance. For example, the Ministry of Education can control any information flow among users of CERNET, and purge any information deemed harmful or illegal at its sole discretion. On the other hand, the *kuai* (horizontal) governance of commercial networks by local telecom agencies demands self-censorship on the part of the ISPs and cooperation regarding content regulation among local agencies of several authorities. While backbone ISPs' subsidiaries and numerous last-mile ISPs impose self-censorship over Internet content on a daily basis, local telecom agencies coordinate "comprehensive strikes" against unlawful Internet content among several regulatory authorities on a periodic basis (a distinctive nature of *kuai* governance). In these official comprehensive strikes, the government heavily relies on ISPs to implement the clearing of harmful information, spam, viruses, and malicious software. For example, the MIIT will first send a notice to backbone carriers, requiring them to deal with the unlawful content within each network. The self-censorship or internal examination by ISPs is achieved through technologies such as keyword filtering, IP

filtering of harmful sites and spam senders, closing illegal sites at the request of other government sectors, or certifying user's information and trusted servers. Finally, the ISPs will be assessed according to their behaviors after the campaign.

Conclusion

Telecommunications carriers have never been neutral: their daily operations are both technical and political. Such characteristics require being deeply embedded in the present political and Internet governance regime. They need to cooperate and coordinate with other special content regulators consistently, which obviously goes beyond pure business. Due to the monopolistic and state-owned nature of the telecommunications industry in China, however, it is quite natural for them to act this way. The future—toward a more open Internet—might depend on a more competitive market and stronger protection of free expression and innovation from the judicial branch.

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See also Internet Content Filtering; Internet Governance; Internet Regulation; Telecommunications Industry; The Great Firewall

Further Reading

Deibert, Ronald, et al. (Eds.). (2008). *Access denied: The practice and policy of global Internet filtering.* Cambridge, MA: MIT Press.

Harwit, Eric. (2008). *China's telecommunications revolution.* Oxford, UK: Oxford University Press.

Hu, Henry L. (2011). The political economy of governing ISPs in China: Perspectives of net neutrality and vertical integration. *China Quarterly, 207*, 523–540. doi: 10.1017/S0305741011000634

Solum, Lawrence B., & Chung, Minn. (2004). The layers principle: Internet architecture and the law. University of San Diego Public Law Research Paper No. 55. Retrieved April 25, 2013, from http://ssrn.com/abstract=416263

Wu, Irene S. (2009). From iron fist to invisible hand: The uneven path of telecommunications reform in China. Stanford, CA: Stanford University Press.

Xu Yan, & Pitt, Douglas. (2002). *Chinese telecommunications policy.* London: Artech House.

Internet and Economic Development

Hùliánwǎng yǔ jīngjì fāzhǎn　互联网与经济发展

Summary: Since its reentry into the global market economy in the 1980s, China has invested heavily in modern communication infrastructures, including the Internet, in a dual effort to support its export-dependent economic base and to move beyond this crisis-ridden growth model. This process and the high stakes involved open up several new and important areas of discussion regarding economic liberalization, national economic strategies, and class-based social relations.

Political economic research in the Anglo-American context has striven to understand communication in conjunction with the expansion and evolution of global capitalism. In the process of corporate growth, which has intensified ever since the 1970s, communications have played an underpinning role not limited to disseminating commercial messages and organizing transnational production networks. Media ownership, commodification of information, and globalization of media corporations are, therefore, among the outstanding themes to help understand the structural and historical relationships between communication and the dynamic capitalist system.

While the Western-led global expansion of corporate power had been used as the framework for understanding international communication, there has been an increasing awareness among political economists to understand the expansion of informationized (i.e., the process by which information technologies are applied in social and economic activities) capitalism on the global level as much as how it is "modulated by social forces" within emerging markets (Zhao and Schiller 2001, 140). In a changed global context where China has deepened entanglement with the global economy, it is even more important to understand how China takes up information and communication to address its own developmental problems.

Economic Liberalization and Internet Development

Since its re-entry into the global market economy in the late 1980s, China has be-

come a major growth outlet. As China is keen to claim a share of the growing information economy, the country has not only built up a world-class information and communications technology (ICT) hardware manufacturing cluster in its coastal regions, but has invested heavily in modern communication infrastructures, including the Internet. One prominent group of empirical studies is guided by the dualism of the state and the Internet and presupposes that the Internet, as an instrument, could empower the civic society and materialize the liberal values of individualism, pluralism, and democracy (Zhang 2002; Yang 2003; Tan 2006; Zhou 2006; Zheng 2007; Tsui 2008; Jiang 2010; MacKinnon 2008). Along this lineal line of thinking, why or why not China's Internet fulfills its potential of liberation and empowerment is the leading research question.

Meanwhile, another prominent group of mainstream research reflects the business hype surrounding the "digital revolution" and is underpinned by the neoliberal ICT-for-development logic. Much has been written, therefore, about business-related topics of infrastructure development and digital economy (Mueller and Tan 1997; Qiang 2007; Carmel, Gao, and Zhang 2010; Yu and Li-Hua 2010), supplemented by market research on the correlations among consumer demographic, attitudes, and technology adoption (Leung 1998; Wei 2006). Although it is unclear whether these two directions of mainstream research are in conversation with one another, they converge on assuming the Internet is the harbinger of "revolutionary change commercially and politically" (Kluver and Yang 2007) and, therefore, focally explore what state policies and institutional arrangements

have accounted for, impeded, and limited China's Internet development.

Political economic research, in contrast, explicates how the market economy with Chinese characteristics shapes the Internet as an institution. The commercialization of telecommunications set the stage for China's Internet development. Despite the neoliberal trends of privatization and deregulation that proceeded across the globe in the 1980s and 1990s (Schiller and Fregoso 1991), the Chinese state partially liberalized telecommunications through divesture. As a consequence, China's telecommunications are still dominated by a handful of state-owned enterprises. In 2008, the government rolled out its third restructuring plan of the industry. China Telecom acquired Railcom and Unicom's mobile network. Unicom merged with China Netcom. China Mobile would remain the third operator. Not only do these state-owned telecom carriers sit on an expanding mixture of fixed-line, wireless, and data networks, they have led the commercialization of information networks (Wong and Ling 2001, 32).

In the state-initiated, controlled commercialization process of telecommunications, the scope of foreign operation has nevertheless expanded incrementally. Not only did state-owned telecom operators deliberately go public via global stock markets, they also sought to sell corporate shares to "foreign strategic partners" (Zhao and Schiller 2001, 146). In the case of its public listing in 2002, China Telecom sought to leverage shares listed on foreign stock exchanges to justify some of its corporate decisions and to avoid bureaucratic interventions (Wu 2009, 75). As a condition to join the World Trade Organization

(WTO), China has opened up its telecom service markets, including the shares in Internet service providers, to foreign operators. Up to 49 percent ownership in China's Internet service–providing companies has opened up to foreign investors gradually since 2001 (Harwit 2008, 104).

Regardless of the origin of capital, China's telecommunications has undergone a substantial process of capitalization and marketization, and, as a result, telecom operators have internalized market logics. Likewise, the nature of China's Internet has shifted from a noncommercial network devoted to academia to a commercialized network. Since 1995 when China Telecom decided to construct a public national network for commercial purposes, the political directive of occupying commanding heights, the internalized accumulation logic, and the fierce competition among state-owned telecom operators have triggered large amounts of investment in the Internet (Qiang 2007, 52). To name a few, Jitong, backed by the Ministry of Electronics Industry in 1993, started the Golden Bridge Network, which provides value-added data services to state-owned enterprises; Netcom, backed by the State Administration of Radio, Film, and Television (SARFT), built Internet protocol (IP) backbone ready for Internet service providers (ISPs) to lease (Wu 2009, 54); and Unicom also runs the IP network UNINET (Wong and Ling 2001, 38).

While unleashing market forces, the state also rolled back its commitment of resources to achieving universal service. In the 1990s, the "telephones to every village" campaign was renewed. Since market reform, however, telecom operators have self-financed their own network development,

as opposed to using a universal service fund. As a result, tensions between the carriers and the provincial branches that shoulder the "telephone to every village" assignment naturally arose. While transnational capital concentrated in coastal regions has generated a compelling demand for network systems and services (Zhao and Schiller 2001, 145), in interior regions, carriers' local branches have suspended rural access tasks, disconnected already existing telephone services, or refused to share network infrastructures due to the lack of commercial incentives (Xia and Lu 2008). The Internet, as a more luxurious form of communication than fixed-line telephone service, has displayed an even more serious situation of regional concentration and regional disparity. Growth-oriented telecom operators have prioritized coastal regions, which promise quicker returns on investment (Zhao 2000, 46). China Internet Network Information Center (CNNIC) has reported that, until 2007, 47.9 percent of China's Internet users were concentrated in the eastern coastal provinces; by January 2009, 71.6 percent of Internet users lived in cities and towns, and Internet users in the countryside only accounted for 28.4 percent (Sun 2010, 140, 143).

In 2005, while the proposed universal service fund failed to materialize, the Ministry of Industry and Information Technology distributed the remaining village access task among the country's telecommunication carriers on their basis of their revenues, profits, and the geographical locations of their networks (Zhao 2000, 115). In recent years, under the state's mandate, China Mobile has taken the largest share of responsibility in the "telephones to every village" campaign. The company reportedly

has guided handset vendors to sell low-end handsets in rural areas as a way of creating demand (Harwit 2008, 180). Indeed, as wireless communication and data network access in urban and developed areas have reached market saturation, it is in telecom operators' long-term interest to turn rural regions and inland areas into a new growth outlet. How to win new customers without sacrificing profit margins, however, has remained an uncompromised priority for publicly listed companies. On the other hand, although new technologies, such as wireless and satellite communications, have been expected to help bridge the digital divide, telecom operators, along with equipment vendors with global ambitions, are more interested in occupying technologically driven new markets than spreading basic services to loss-making regions (Harwit 2008, 179). In recent years, China's telecom operators, along with foreign and domestic equipment providers, have single-mindedly pushed for 3G-network construction as a new market growth outlet despite the unfulfilled "telephones to every village" target originally set for the Ninth Five-Year-Plan period of 1996–2000 (Zhao 2008, 153).

Internet and National Economic Strategies

Political economic research of communication, as an academic tradition, has also been interested in social change and historical transformation. As for the Internet, how the Chinese state and corporate players harness industrial policy and technological change to the national advantage is a matter relevant to the global structure of capitalism. On the one hand, Internet development has accompanied China's rise as a production powerhouse. On the other hand, it has become, in recent years, a focal arena where national economic strategies are implemented with the purpose of improving the country's economic quality and upgrading its profile.

China has expected to achieve a "front-runner" status in the latest ICT technological applications (Tai 2006, 90). Technological adaptation, however, does not grant the country independent and sustainable design and innovation capacities. In fact, China's expanding networks have offered foreign vendors a huge market and created a new round of technological dependence. From the outset of the market reform, China has joined the International Monetary Fund and the World Bank to get loans to jumpstart its imports of advanced telecom technologies (Sun 2010, 132). Apart from loans, in order to jumpstart China's information technology–related industries, the state has liberalized foreign direct investment and, as result, has turned China into a world-class processing cluster of finished consumer electronics (Hong 2008). As Asian studies scholar Eric Harwit documented, in the fixed-line switching equipment market, China's domestic latecomers, including ZTE Corporation and Huawei, succeeded to some degree in grappling market shares away from transnational corporations in the 1990s. The prospect for China's industrial upgrading and corporate expansion, however, is not foreordained. When leading domestic equipment vendors entered the production of wireless and data communication equipment around the turn of the twenty-first century, transnational corporations had collectively and tactically claimed a controlling share of their joint

ventures with Chinese partners in order to localize new technologies (Harwit 2008, 131). To what extent, under what circumstances, and with what industrial policies China's domestic industries would achieve upgrading and move ahead will be a relevant question for future research.

Indeed, while academic and policy discourses concerned with the Internet have narrowly focused on high-tech information technology (IT) applications, the separation between the Internet as a user-oriented medium and China's role in the global IT-related production chains has obscured some important trends in China. In the Chinese context, manufacturing has been the biggest segment of the ICT sector. No doubt, the share of the software industry grew from 6.3 percent of China's ICT in 2001 to 11.2 percent in 2005. Yet even by the end of 2007, while employment in above-scale ICT enterprises reached 7.77 million, as many as 6.75 million were hired in manufacturing enterprises whereas only 1.02 million were in software enterprises (Hong 2011). Given the disproportionate distribution of hardware and software capacities, China has faced the challenge of translating its sheer industrial size into some form of industrial leadership and of diversifying its economic portfolio to include some competitive service industries. In recent years the state has consciously mobilized domestic resources to set next-generation technical standards. Indeed, China's past attempts at standard development were mostly unsuccessful for a couple of reasons. The scholars Heejin Lee, Shirley Chan, and Sungjo Oh (2009) observed that in the case of China's own wireless security protocol, WAPI (Wireless Local Area Network Authentication and Privacy Infrastructure), the

commercialization plan backfired largely because China failed to leverage the biggest chip maker, Intel, to customize chips compatible with WAPI. In other cases, the conflicted interests among various branches of the state and inter-capitalist rivalries among domestic corporate players also curtailed the techno-nationalist ambitions (Qiu 2010; Zhao 2010a). More recently, in the process of developing and commercializing China's own 3G telecom standard, the state took a number of policy instruments to enforce it, including creating an industrial alliance, setting up a Time Division Synchronous Code Division Multiple Access (TD-SCDMA) research-and-development and industrialization funding budget worth US$85.4 million, and assigning favorable frequencies to the standard (Yu and Li-Hua 2010, 76–79). Although China Mobile has adopted the TD standard and has started commercial services, it is uncertain to what extent the 3G-based development scheme will succeed in the long term.

Meanwhile, the broadband network, which can offer a combination of voice, data, and video services, has been identified as a nodal point for business development and industrial upgrading. In 2010, after a decade of contest, the state renewed the process of "triple network convergence," which will entail an ever-larger scale of creative deconstruction of existing physical networks. Importantly, the broadband network is expected to proliferate new ICT applications and content services (Qiang 2007). The "Instruction Opinions on Developing the News and Publication Industry" issued in 2009 called for the development of mobile phone publication and digital publication. Not accidentally, in 2009, the state kicked off the process of corporate

transformation of news and publication institutions. Certainly, Internet-related economic activities have long been recognized as vital for China's economic development. Corporations started to seek online business opportunities, including web solutions, online advertising services, and Internet content provision (Tai 2006, 139–140). Meanwhile, the state has also expected the Internet to upgrade China's business and trade environment through online transactions. While China's IT and software industry grew at an annual rate of 30 percent during the 1990s, its software service outsourcing industry is growing (Carmel et al. 2010, 38).

Internet and Social Class

With the political economic interest in social change and historical transformation, it is logical to ask how the Internet contributes to the reconstitution of class power and state-society relationships in the broader context of China's market reform. Given that China's market reform has created some fundamental tensions between the bureaucratic capitalist system and the burgeoning disenfranchised groups of workers and peasants, how has the Internet been harnessed to silence social dissents and contain grassroots activism? And to what extent has the Internet been instrumental to grassroots initiatives?

Scholars have analyzed the multiple-layered control mechanisms over the Internet. On the physical infrastructure level, major telecom operators own and control all the major networks. The major networks (i.e., ChinaNet, CERNET, GBNet, CSTNet, UNINET, and CNCNET) have collectively formed China's Internet back-bone and accounted for nearly 80 percent of all Internet businesses (Wong and Ling 2001, 34). ChinaNet, owned by China Telecom, includes eight regional network centers that cover thirty-one provinces and cities (Wong and Ling 2001, 32). Along with these main Internet service providers, in the late 1990s, the state approved more than three hundred ISPs. All ISPs along their computer networks have to connect with the Internet via China Telecom's national infrastructure, and all international Internet traffic must go through the few government-owned networks (Wong and Ling 2001, 51). The state exerts its licensing control to demand ISPs to follow state guidelines on which services are permitted and which are not (Zhou 2006, 143). Finally, on the content level, the state regulation stipulates that only the websites of central and provincial news organizations have the permission to report and collect news, and the vast majority of websites can only reformat and relay state news (Zhou 2006, 143). Meanwhile, the Xinhua News Agency, *People's Daily*, and China Central Television (CCTV) have launched their online outlets (Zhou 2006, 147). Indeed, in view of the skyrocketing expansion rates of Internet usage, the most prominent theme is about the potential, yet handicapped, democratizing influence of the Internet (Yang 2003; Tai 2006; Zhou 2006).

How Internet development contributes to class formation nevertheless is a relatively weak area of research. Yuezhi Zhao, a leading critical scholar on Chinese communications, has started to blaze the path by examining the correlations between "the unequal distribution of control over systems of communications and wider patterns of inequality in the distribution of wealth and

power" (Zhao 2008, 7). The Chinese party-state has been the captain of media commercialization without unleashing a massive wave of privatization; in this unique path of media liberalization with Chinese characteristics, Zhao (2008, 79) argues, the state-monopolized commercialized media have developed a vested interest in the existing political economic order, and, therefore, Chinese media, including telecom carriers and Internet service providers, have been politically compliant and developed bias born of class with a few exceptions. Meanwhile, recognizing the asymmetric access to Internet resources, when China's economic reform has created a huge army of rural proletariats and urban underclasses, what does access to ICTs mean to these disenfranchised and underemployed people? Working-class connectivity through ICTs, as the journalism and communication professor Jack Linchuan Qiu has shown, is pervasive in contemporary China. High-end market saturation, intercorporate competition, and the development of a domestic equipment industry have accidentally created a working-class "have-less" network society. Clearly, the have-less strata, including migrant workers, laid-off workers, pensioners, and micro-entrepreneurs, have used a variety of communication devices to form their communities and cultures (Qiu 2009).

The unfinished history of class formation and class reconstitution will be relevant to future research on the broadly defined China Internet study. As ICT-related sectors have become a major growth outlet in the global and domestic market economy, China's efforts to move away from its export-dependent manufacturing economy have pivoted on ICT sectors. Clearly, pouring educational resources into developing high-tech ICT is a strategic step toward industrial restructuring and economic upgrading. Developing a high-tech ICT sector—according to China's Eleventh Five-Year Plan (2006–2010) and the National Long-term Guideline for Science and Technical Development of 2006–2020—rests upon the idea of prioritizing human capital formation in software, microelectronics, animation, and information service industries. By 2015, vocational schools and technical colleges are expected to train 1.2 million practitioners and generate 1 million new graduates for the software and information service outsourcing industry (Hong 2010).

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See also Internet Governance; Internet Regulation; Social and Political Impact; Telecommunications Industry

Further Reading

Carmel, Erran; Gao Guodong; & Zhang Ning. (2010). The maturing Chinese offshore IT service industry: It takes ten years to sharpen a sword. In Mary C. Lacity, Leslie P. Willcocks & Zheng Yingqin (Eds.), *China's emerging outsourcing capacities: The services challenges* (pp. 37–56). New York: Palgrave Macmillan.

Harwit, Eric. (2008). *China's telecommunications revolution*. New York: Oxford University Press.

Hong Yu. (2008). Distinctive characteristics of China's path of ICT development—A critical analysis of Chinese developmental strategies in light of the eastern Asian model. *International Journal of Communication, 2*, 456–471.

Hong Yu. (2010). The politics of a socialist harmonious society in the aftermath of China's neoliberal development. *Chinese Journal of Communication, 11*(1), 311–328.

Hong Yu. (2011). Labor, class formation, and China's informationized policy of economic development. Lanham, MD: Lexington Books.

Jiang Min. (2010). Authoritarian deliberation on Chinese Internet. *Electronic Journal of Communication*, *20*. Retrieved May 1, 2014, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1439354

Kluver, Randolph, & Yang Chen. (2007). The Internet in China: A meta-review of research. *The Information Society*, *21*(4), 301–308.

Lee, Heejin; Chan, Shirley; & Oh, Sangjo. (2009). China's ICT standards policy after the WTO accession: Techno-national versus techno-globalism. *Info: The Journal of Policy, Regulation and Strategy for Telecommunications, Information and Media*, *3*(2), 9–18.

Leung, Louis. (1998). Lifestyles and the use of new media technology in urban china. *Telecommunications Policy 1998*, *22*, 781.

MacKinnon, Rebecca. (2008, June 18). Chinese Internet Research Conference: Getting beyond "Iron Curtain 2.0." *RConversation*. Retrieved May 1, 2014, from http://rconversation.blogs.com/rconversation/2008/06/chinese-inter-1.html

McChesney, W. Robert. (1999). *Rich media, poor democracy: Communication politics in dubious times*. Urbana: University of Illinois Press.

Mueller, Milton & Tan Zixiang. (1997). *China in the information age: Telecommunications and the dilemmas of reform*. Westport, CT: Praeger Publishers.

Qiang, Christine Zhen-Wei. (2007). *China's information revolution: Managing the economic and social transformation*. Washington, DC: The World Bank.

Qiu, Jack Linchuan. (2009). *Working class network society: Communication technology and the information have-less in urban China*. Cambridge, MA: MIT Press.

Qiu, Jack Linchuan. (2010). Chinese techno-nationalism and global WiFi policy. In Michael Curtin & Hemant Shah (Eds.), *Reorienting global communication: Indian and Chinese media beyond borders* (pp. 284–303), Urbana: University of Illinois Press.

Schiller, Daniel. (2000). *Digital capitalism: Networking the global market system*. Cambridge, MA: MIT Press.

Schiller, Daniel, & Fregoso, RosaLinda. (1991). A private view of the digital world. *Telecommunications Policy*, *15*, 195–208.

Sun, Helen. (2010). *Internet policy in China: A field study of Internet cafes*. Lanham, MD: Lexington Books.

Tan, Z. (2006). *The Internet in China: Cyberspace and civil society*. New York and London: Routledge.

Tai Zixue. (2006). *The Internet in China: Cyberspace and civil society*. New York: Routledge.

Tsui, Lokman. (2008, June 13–14). The Great Firewall as Iron Curtain 2.0: The Implications of China's Internet most dominant metaphor for US foreign policy. Paper presented at the Sixth Annual Chinese Internet Research Conference. Hong Kong University.

Wei Ran. (2006). Lifestyles and new media: Adoption and use of wireless communication technologies in china. *New Media & Society*, *8*, 991–1008.

Wong, John, & Seok Ling, Nah. (2001). *China's emerging new economy: The Internet and e-commerce*. Singapore: Singapore University Press.

Wu, S. Irene. (2009). *From iron fist to invisible hand: The uneven path of telecommunications reform in China*. Stanford, CA: Stanford University Press.

Xia, Jun; & Lu, Ting-Jie. (2008). Bridging the digital divide for rural communities: The case of China. *Telecommunications Policy*, *32*, 686–696.

Yang, Guobin. (2003). The co-evolution of the Internet and civil society in China. *Asian Survey*, *43*(3), 405–422.

Yu, Jiang, & Li-Hua, Richard. (2010). *China's highway of information and communication technology*. Basingstoke, UK: Palgrave Macmillan.

Zhang Junhua. (2002). Will the government "serve the people"?: The development of Chinese e-government. *New Media Society*, *4*, 163.

Zhao Yuezhi. (2000). Caught in the web: The public Internet and the battle for control of China's information superhighway. *Info: The Journal of Policy, Regulation and Strategy for Telecommunications, Information and Media*, *2*(1), 41–66.

Zhao Yuezhi. (2008). *Communication in China: Political economy, power, and conflict*. Lanham, MD: Rowman & Littlefield.

Zhao Yuezhi. (2010a). China's pursuits of indigenous innovations in information technology developments: Hopes, follies and uncertainties. *Chinese Journal of Communication*, *3*(3), 266–289.

Zhao Yuezhi. (2010b). Rethinking Chinese media studies: History, political economy and culture. In D. Thussu (Ed.), *Internationalizing Media Studies* (pp. 175–195). London: Routledge.

Zhao Yuezhi, & Schiller, Dan. (2001). Dances with wolves? China's integration into digital capitalism. *Info: The Journal of Policy, Regulation and Strategy for Telecommunications, Information and Media,* 3(2), 137–151.

Zheng Yongnian. (2007). *Technological empowerment: The Internet, state, and society in China.* Stanford, CA: Stanford University Press.

Zhou Yongming. (2006). *Historicizing online politics: Telegraphy, the Internet and political participation in China.* Stanford, CA: Stanford University Press.

Advertising Online

Wǎngluò guǎnggào　网络广告

Summary: Online advertising is growing rapidly in China, giving advertisers one more channel to reach consumers. Deceptive and misleading advertising on the Internet, however, is a cause for concern among consumers and regulators. Lack of adequate legislation at the national level has forced regulators to rely on outdated advertising laws to police online advertising. Regulatory enforcement is problematic due to the multiple government agencies involved for different industries and at different levels of the process.

The role of advertising in a consumer society cannot be overemphasized. It not only keeps consumers informed of innovative products and services but also helps sustain the modern media industry. As free content has almost become a norm on the web, advertising has proved to be one of the more viable business models on which digital media companies can survive. In China, as elsewhere, online advertising has been growing fast.

Online Advertising Business in China

Like its growing economy, the development of China's Internet industry can be described as explosive. Within just two years, the Chinese Internet user population jumped from 457 million at the end of 2010 to over half a billion at the end of 2012, the largest in the world (CNNIC 2013). As in other countries, Chinese Internet users not only gather news and communicate with each other on the web, very frequently via their mobile phones, but also shop, socialize, and seek entertainment content. As a critical source of information and entertainment, the Internet has captured the imagination of marketers and advertisers who want to make online advertising part of their integrated marketing strategy.

Online advertising takes multiple forms and can be classified into four categories: search advertising, display advertising, classified listings, and email-based advertising (Evans 2008). The rise of social media for advertising purposes in recent years could be considered a fifth category. Online advertising resembles traditional advertising in

a variety of ways. For instance, its use of text and graphics resembles print advertising, while its application of audiovisual effects is analogous to television advertising. Yet online advertising is different from traditional advertising in certain important ways. For example, as suggested in research by Wang Chingning and his colleagues (2002), online advertising is more interactive, can better target consumers, and may translate into a commercial transaction more easily than traditional advertising.

According to the journalism and electronic media scholars Barbara Kaye and Norman Medoff (2001), 1994 marked the beginning of online advertising when *Wired* magazine put banner advertisements on its website in the United States. In China, online advertising did not start until 1997, when the first paid online advertisement appeared on ChinaByte's website. Since then, the continued increase in Internet penetration and the expansion of online activities have fueled the growth of China's online advertising market, and the industry has grown in market size, revenue, and share in the overall advertising market.

In China, most online advertising spending is allocated to large local portals, such as Sina.com and Sohu.com, as well as China's top search engine, Baidu. The rise of Chinese social media such as social networking sites (e.g., www.kaixin001.com) and video sharing sites (e.g., Tudou and Youku) has given online advertisers one more channel to reach out to consumers. Research shows that in 2009, about 20 percent of Chinese Internet users visited video sharing sites, where advertisers spent 590 million yuan (US$90 million), representing an increase of 73.5 percent over the previ-

ous year (Data Center of China Internet 2010).

Regulating Online Advertisement

With the growth of online advertising has come misleading, deceptive, false, and fraudulent advertising that harms consumers' interests and hurts consumer confidence in online marketers. For this reason, governments worldwide have taken legislative and enforcement steps to regulate Internet advertising. The United States and the European Union, as well as their established Internet industries, for instance, have taken steps to not only regulate but also self-regulate Internet marketing practices since the 1990s (Venturelli 2002). China's online advertising industry is plagued by similar issues of mistrust found in developed countries. For instance, from 27 November 2007 to 7 February 2008, China's State Administration for Industry and Commerce (SAIC) detected violations in 41,360 Internet advertisements on 10,320 websites in its campaign to crack down on illegal online advertisements of sex-related products and treatments of venereal diseases by advertisers not certified to offer safe products and services of that category.

Although its online advertising industry is similar to those in developed countries in terms of format and business models, China's regulatory mechanism is characterized by two predicaments. First, advertising laws in China have failed to keep pace with new Internet technologies. In the face of fraudulent and misleading advertisements online, there has not been a legislative mandate at the national level to specifically address those challenges in the online environment. Second, the hierarchical structure

of online advertising regulation has so many government agencies involved as to demand coordination among competing interest groups.

Laws and Regulations

On the legislative front, the Chinese government has relied on a number of laws and administrative rules established in the 1980s and 1990s to govern online advertising. The most important piece is the Advertising Law of the People's Republic of China, promulgated by the National People's Congress (China's highest legislative authority) in 1994, which lays the legal foundation for regulating advertising in general. Other national administrative rules include the Code of Ethics for Advertising Practice, and the Provisional Rules Concerning Language and Characters in Advertising. These general laws and rules have established the fundamental principles for China's advertising regulation; these rules apply to Internet advertising as well, such as truthfulness and conformity to socialist ethics. Moreover, those overarching principles set up the technical framework for government agencies and their local branches to promulgate and enforce specific administrative rules (Gao 2007).

Absent national legislation governing online advertising, some local governments have filled the gap with their own rules that target different aspects of online advertising. For instance, the Beijing municipal government issued provisional measures in 2001, which banned online advertising for tobacco and sex aids as well as requiring Internet service providers to check the content of online advertisements.

Regulatory and Enforcement Entities

The Chinese government adopts a parallel structure for its online advertising regulation and enforcement, with ministries and commissions at the same or comparable administrative rank participating from their sector-specific perspectives. In essence, with no agency outranking others, it is sometimes difficult for things to get done.

The SAIC acts as the primary government agency to regulate advertising, including Internet advertising, as part of its broad authority over industrial and commercial activities. The major approach it adopts to enforce China's advertising laws and regulations is to launch campaigns, sometimes called "key inspections" (*zhōngdián jiǎnchá* 重点检查) or "special crack-downs" (*zhuānxiàng zhěngzhì* 专项整治) (Gao 2007). Usually when complaints against a certain category of advertising rise dramatically, or the violations on an advertising medium exceed a threshold, the SAIC, with the assistance of its local offices, initiates a campaign to redress the situation. Since a national campaign to crack down on false and deceptive advertisements was launched in 2006, violations decreased substantially from 61,867 in 2006 to 51,599 cases in 2009. To punish violators, the SAIC and its local agencies levy penalties including cease-and-desist orders, fines, mandatory closure, and revocation of business licenses (National People's Congress 1994).

In addition to the SAIC, agencies such as the Internet Affairs Bureau of the State Council Information Office, the Ministry of Public Security, the General Administration of Press and Publication, the Ministry of

Culture, the Ministry of Health, and the State Drug Administration also participate in online advertising regulation and enforcement. Each of these bodies has the authority to issue advertising rules regarding specific media or products under their jurisdictions, and each has the authority to enforce rules and regulations on a specific category of advertising through mandatory certification and censorship systems (Gao 2007).

Local governments, authorized to issue local rules and measures regarding advertising, are directly responsible for enforcing national laws and regulations. Local campaigns to crack down on fraudulent and deceptive online advertising or marketing practices are often joint efforts of local government agencies, including local administrations for industry and commerce, health departments, and food and drug administrations. Their involvement complicates regulatory enforcement, however. Typical of the Chinese language, advertising laws and rules are couched in broad, vague, and rigid terms of political ideology and upheld by subjective enforcement (Corne 2002). As a result, the interpretation and enforcement of advertising laws and rules in the online environment can be inconsistent, and vary from region to region. Involvement by local governments may therefore give rise to local protectionism.

The Outlook for Online Advertising

In China, the government plays a central role in policy choices like online advertising regulation. That leaves little room for industrial players like the China Advertising Association or the China Commercial Advertising Association, which are not authorized by SAIC, to monitor compliance and handle complaints, or to step in and initiate self-regulation in their own interests. Without a strong self-regulatory system such as is well-established in developed countries, government agencies are left to struggle with the rising tide of deceptive, fraudulent, and unfair advertisements on the Internet. In order for China's online advertising industry to enjoy better growth opportunities, self-regulation by industrial players as a supplement to government regulation is critical.

Compared with that of the United States, China's online advertising market is much smaller in size, yet it has a greater potential for accelerated growth due to China's much larger population. Internet access will likely become more affordable to a greater percentage of the Chinese population as a result of innovations in technology and growth in disposable income, and advertisers will explore business opportunities in those new user populations and on new technological platforms. With transformations in technology, business development, and, potentially, legislation, online advertising will play a bigger role in China's advertising industry in the near future.

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See also Consumers Online; Email; Internet and Economic Development; Internet Regulation; Shopping Online

Further Reading

Chan, Kara K. W., & McNeal, James U. (2004). *Advertising to children in China*. Hong Kong: The Chinese University Press.

China Internet Network Information Center (CNNIC). (2013, January). Statistical report on Internet development in China. Retrieved on April, 15, 2013, from http://www1.cnnic.cn/IDR/ReportDownloads/201302/P020130312536825920279.pdf

Corne, Peter Howard. (2002). Creation and application of law in the PRC. *The American Journal of Comparative Law*, *50*, 369–443.

Data Center of China Internet. (2010). Twenty percent of Chinese people visit video sharing sites. Retrieved April, 25, 2013, from http://www.dcci.com.cn/publish/view/cid/3/id/416.html

Evans, David S. (2008). The economics of the online advertising industry. *Review of Network Economics*, *7*(3), 359–391.

Gao Zhihong. (2005). Harmonious regional advertising regulation? *Journal of Advertising*, *34*(3), 75–87.

Gao Zhihong. (2007). An in-depth examination of China's advertising regulation system. *Asia Pacific Journal of Marketing and Logistics*, *19*(3), 307–323.

Ha, Louisa. (2008). Online advertising research in advertising journals: A review. *Journal of Current Issues and Research in Advertising*, *30*(1), 31–48.

Huang, Y. and Xie, D. (2006). Present, future and development of online advertising in China. *Journalism Academy*, 2, 15–19. [in Chinese]

iResearch (2011). *Airui zixun: 2010 nian Zhongguo wangluo guanggao niandu shuju fabu* [iResearch: Release of 2010 China online advertising statistics]. Retrieved August, 14, 2013, from http://a.iresearch.cn/29/20110128/132400.shtml

Kaye, Barbara K., & Medoff, Norman J. (2001). *Just a click away: Advertising on the Internet*. Columbus, OH: Allyn and Bacon.

Venturelli, Shalini. (2002). Inventing e-regulation in the US, EU and East Asia: Conflicting social visions of the Information Society. *Telematics & Informatics*, *19*(2), 69–90.

Wang Chingning; Zhang Ping; Choi Risook; & D'Eredita, Michael. (2002). Understanding consumers' attitude toward advertising. *Proceedings of the Eighth Americas Conference on Information Systems*, 1143–1148.

Wang Ying; Sun Shaojing; Lei Weizhen; & Toncar, Mark. (2009). Examining beliefs and attitudes toward online advertising among Chinese consumers. *Direct Marketing: An International Journal*, *3*(1), 52–66.