Electronic Commerce
—A Perspective from China

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Preface

    This book is devoted to the situation of E-commerce development, theory and practice in China.

    As we enter the 21st century, we experience a significant change in our lives — the move to an Internet-based society. Electronic commerce (E-commerce), as one of the most important applications of Internet, plays an increasingly important role in the emerging market.

    In recent years, Chinese E-commerce has maintained a rapid growth. Supported by multiple drivers of technology innovation, market demand and investment, E-commerce service is booming, its market is expanding and E-commerce applications of enterprises are deepening. E-commerce consumer groups, including consumers of online shopping, integrate purchase, online booking, etc., are developing rapidly. E-commerce has become the important social and economic forms and modern methods of distribution.

    According to figures disclosed by the *China's E-commerce*,[①] in 2010 and 2011 E-commerce trade volume of China continuously broke new records. E-commerce trade volume of China reached CNY 4.550 trillion in 2010, and reached CNY 5.88 trillion in 2011, which increased 29.2% compared to 2010 and was equivalent of 12.5% of the gross domestic product. E-commerce services industry has played an increasingly important role in promoting domestic demand, improving employment, bettering circulation, facilitating consumption and rising social efficiency of resource allocation. At the same time, the development of E-commerce services industry has become control means of market pricing and marketing, effective means promoting transformation from "Made in China" to "Created in China", its strategic leading role can not be ignored.

    I started researching E-commerce from 1996, and took part in the editorial work of *Chinese E-commerce* Report for China's Ministry of Commerce for five times from

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①   China's Ministry of Commerce. China's E-commerce[M]. Beijing: Qinghua University Press. 2012: 2.

2003, in which I played chief editor for three times. In the preparation of the report, I am so deeply moved by the rapid development of Chinese E-commerce that I desire to introduce it to the world. In 2011, the project of the "12th Five-Year" Shanghai key books publishing planning I applied was approved. Many teachers and graduate students actively participated in writing of this book, and Lixin Accounting Publishing House helped me to solve some problems of English book writing from different perspectives, so the book can be completed.

Electronic Commerce — A Perspective from China contains twelve chapters, including Introduction to E-commerce, Development Strategy of E-commerce, E-commerce Technology Foundation, E-commerce Website Construction, Collection and Collation of Internet Business Information, Internet Trading Behavior, E-marketing, Online Promotion, E-commerce Application-Specific Standards, Electronic Payment, E-commerce Logistics, Security Management in Network Transactions.

The following authors have mainly participated in the book: Yang Jianzheng: Chapter 1, Chapter 3; Cai Jianping: Chapter 4, Chapter 11; Yang Lifan: Chapter 7, Chapter 8, Chapter 2; Fei Guoping: Chapter 10, Chapter 12; Hua Kefang: Chapter 5, Chapter 6; David Zhow: Chapter 9.

Throughout the writing of this book, several outstanding individuals are integrally involved. I would especially like to acknowledge the contribution of Professor Shi Qiliang for providing constructive comments and reviewing the book. I have also benefited significantly from contributions, books and papers by several leading executives and scholars in E-commerce fields. I have been teaching in University of Shanghai for Science and Technology for twelve years and cannot forget the help of many post graduate students in teaching E-commerce course and writing this book. They are Ye Jiajia, Wang Dandan, Ren Man, Xia Yunchao, Li Ling, Bai Leilei,Song Danlu, Wu Juan, Peng Jiajuan, Luo Xi, Xu Xinting, Fan Zhipeng, Xia Ying, etc. National Natural Science Foundation of China (70973079), Shanghai Municipal Education Commission Key Discipline Construction Project (S30504) and Tertiary Shanghai Education Highlands (E-commerce) Construction Project all gave financial support.

The support and expertise from Lixin Accounting Publishing House editors: Dou Hanxiu, Xu Xiaoxia and Huang Chenggen, are greatly appreciated. Also, the book would never have come together without the editorial and production staff at Lixin Accounting Publishing House.

Yang Jianzheng

Jun. 2012

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Chapter 1

Introduction to E-commerce

In contemporary society, people have deeply felt the impact of the second information revolution. A modern information network represented by the Internet has formed in the world, and its application range expands from simple communication, education and business information search to commerce which has more benefits. Understanding of electronic commerce (E-commerce) and participating in E-commerce has become a new and prior task which managers, entrepreneurs and consumers must pay serious attention to. On the basis of introducing developing history of E-commerce and its prospect, this chapter systematically discusses the basic concept, classification, basic processing and the legal relationship between participants of E-commerce. The chapter also describes the E-commerce status and its role in modern society which will bring a systematic understanding of E-commerce to readers.

1.1 E-commerce Development: Past, Present and Future

1.1.1 History of E-commerce Development

The history of E-commerce development can be divided into four stages: beginning, rapid expansion, crisis and stagnation, recovery.

1. Stage of Gestation and Beginning

The origin of electronic commerce can be traced to the 1970s. From the late 1970s to the early 1980s, some developed countries such as the United States, Britain and other European countries gradually adopted Electronic Data Interchange (EDI) in trading, and formed the global tide of "paperless trading". By the end of 1992, there were about 13 million users of EDI in the world, and the market trade volume was about 2 billion dollars.

Since the 1990s, with breakthroughs in networking, communication and information technology, the Internet has spread rapidly around the world, requiring modern businesses to have a more rapid supply capability, more accurate customer service capability and stronger competitiveness in the market. In this new trend, E-commerce, based on the Internet, with the transaction parties as the mainstay, the bank electronic payment and settlement as the means, and the customer data as the basis, emerged and developed as a new business model.

2. Stage of Rapid Development

On December 16, 1996, the 85th session of United Nations passed resolution 51/162, and published the UNCITRAL[①] Model Law on Electronic Commerce with Guide to Enactment (shorted as the Model Law of E-commerce). It regulates a variety of behaviors in E-commerce activities, greatly promotes the development of the world E-commerce, and provides a sample to states in enacting laws of E-commerce.

On April 15, 1997, the European Union proposed the *Action Plan of E-commerce of EU*, which formulated the principles of information infrastructure, management framework, business environment, etc. On July 1 of the same year, the U. S. government released *A Framework for Global Electronic Commerce*. The report articulates the Administration's vision for the emergence of the GII (Global Information Infrastructure) as a vibrant global marketplace by suggesting a set of principles, presenting a series of policies and establishing a road map for international discussions and agreements to facilitate the growth of commerce on the Internet. The report greatly promoted the development of E-commerce in America and in the world. In that year, the trading volume of E-commerce through Internet amounted to 2. 6 billion dollars around the world.

The following year, many multinational companies, such as IBM and HP, announced 1998 as "the year of E-commerce". The suggestion was supported by many information technology companies and business companies. On December 14, 1999, after heated discussions for half a year, Ziff Davis, in collaboration with 301 top global Internet merchants, IT vendors, consumer and community advocates, analysts, journalists and academics, released The Standard for Internet Commerce, Version 1. 0. This was the first comprehensive standard for E-commerce. Although it is not a legal text, the sellers who adhered to it gained greater development in the subsequent years.

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① The United Nations Commission on International Trade Law (UNCITRAL) was established by the United Nations General Assembly by its Resolution 2205 (XXI) of 17 December 1966 to promote the progressive harmonization and unification of international trade law. UNCITRAL carries out its work at annual sessions held alternately in New York City and Vienna.

In 2000, E-commerce transactions of the world reached 354. 9 billion U. S. dollars.

3. Stage of Crisis and Stagnancy

Entering the 21st century, the Internet economy suffered a heavy blow for the first time. The slump of NASDAQ index and the depreciation of network stock made inventors worry. At that time, much attention focused on the Internet economy bubble. In particular, the deterioration of the stock price of Amazon Company which is a model E-commerce Company in the United States, and the bankruptcy of 8848. com and other E-commerce companies in China brought more fears to people. E-commerce seemed to have come to the brink of collapse. Some newspapers even exclaimed that "network companies have begun to share the last supper".

Facing the grim situation of E-commerce development, some relevant organizations of the United Nations began to strengthen the development work of E-commerce. On 10 May 2001, UN/CEFACT[①] and OASIS[②] approved the ebXML[③] standard which is a modular suite of specifications that enables enterprises of any size and in any geographical location to conduct business over the Internet.

In November 2001, the UN Conference on Trade and Development (UNCITRAL) released the E-commerce and Development Report 2001[④] in which the preface was written by Kofi A. Annan, secretary-general of the United Nations. On the basis of reviewing the course of E-commerce development, the report, more than 400 thousand words, thoroughly analyzed the impact of E-commerce on developing countries and developed countries, formed the model of E-commerce development and its practical methods, and comprehensively summarized E-commerce application. It should be said that this report played an extremely important role in the promotion of E-commerce at that critical moment.

On January 24, 2002, United Nations General Assembly Fifty-sixth session passed the Model Law on Electronic Signature[⑤](short as Electronic Signature Law).

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① UN/CEFACT (The United Nations Centre for Trade Facilitation and Electronic Business) has a mission to improve the ability of business, trade and administrative organizations, from developed, developing and transitional economies, to exchange products and relevant services effectively — and so contribute to the growth of global commerce.

② OASIS (Organization for the Advancement of Structured Information Standards) is a not-for-profit consortium that drives the development, convergence and adoption of open standards for the global information society.

③ ebXML (Electronic Business eXtensible Markup Language) specifications and technical reports are available at no charge on http://www. ebxml. org.

④ United Nations Conference on Trade and Development. E-commerce and Development Report 2001 [R/OL](2001 – 11 – 30)[2012 – 07 – 20]. UNCTAD Website: http://r0. unctad. org/ecommerce/docs/edr01_en/edr01_en. pdf.

⑤ United Nations General Assembly Fifty-sixth session. Model Law on Electronic Signatures of the United Nations Commission on International Trade Law. A/56/588, 24 January, 2002.

It is an important law following the Model Law of Electronic Commerce. It aims at, by bringing additional legal certainty to the use of electronic signatures, establishing a security mechanism to spread E-commerce in world trade activities.

4. Stage of Recovery

On December 9, 2005, the 60th UN International Conference passed the *United Nations Convention on the Use of Electronic Communications in International Contracts* which proposed that the adoption of uniform rules to remove obstacles to the usage of electronic communications in international contracts, including obstacles that might result from the operation of existing international trade law instruments, would enhance legal certainty and commercial predictability for international contracts and help states gain access to modern trade routes. By July 2010, 18 countries had signed the convention. [①]

Meanwhile, individual national governments also launched various incentive policies and continued to support the development of E-commerce. Getting rid of the impact of global economic atrophy and IT industry bubble burst, E-commerce entered into a warmer stage of recovery.

By the end of 2006, the total number of Internet users reached 1.131 billion in the world, which had a great impact on global economic development. The development of E-commerce turned normal in the United States, the largest global E-commerce market. E-commerce sales (including both Internet and other networks) continued to grow during 2005 and reached USD 2,400 billion for the year. In Canada, Internet sales continued to increase substantially, reaching CAD 49.76 billion in 2006. In European Union countries, placing and receiving orders over the Internet was widely accepted by enterprises. In some countries which started E-commerce earlier, such as Finland, Sweden, and Denmark, the proportion of enterprises receiving orders over the Internet reached more than 30% and placing orders over 50%. In 2006, the sales of research engine market in Japan reached JPY 93 billion and the E-commerce transactions in South Korea reached KRW 413.58 trillion.

1.1.2　Current Situation of World E-commerce Development

1. General Situation

1) Users of Internet Reaching More Than 2 Billion

By December 31, 2011, the number of Internet users in the world reached 2.267

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① By January 2010, 18 countries have signed the convention. United Nations Commission on International Trade Law. Status, 2005 — United Nations Convention on the Use of Electronic Communications in International Contracts[EB/OL](2010 - 07 - 07)[2012 - 08 - 20].

billion, increasing 528. 1% over 2000 (see Table 1 – 1). Such a large number of Internet users laid a solid foundation for the development of E-commerce.

Table 1 – 1   World Internet Users and Population Statistics(2011 – 12 – 31)[①]

World Regions	Population (2011 Est.)	Internet Users Dec. 31, 2000	Internet Users Latest Data	Penetration (% Population)	Growth 2000 – 2011	Users% of Table
Africa	1,037,524,058	4,514,400	**139,875,242**	13. 5	2,988. 4%	6. 2
Asia	3,879,740,877	114,304,000	**1,016,799,076**	26. 2	789. 6%	44. 8
Europe	816,426,346	105,096,093	**500,723,686**	61. 3	376. 4%	22. 1
Middle East	216,258,843	3,284,800	**77,020,995**	35. 6	2,244. 8%	3. 4
North America	347,394,870	108,096,800	**273,067,546**	78. 6	152. 6%	12. 0
Latin America / Carib.	597,283,165	18,068,919	**235,819,740**	39. 5	1,205. 1%	10. 4
Oceania / Australia	35,426,995	7,620,480	**23,927,457**	67. 5	214. 0%	1. 1
WORLD TOTAL	6,930,055,154	360,985,492	**2,267,233,742**	32. 7	528. 1%	100. 0

2) The Number of Internet Sites in the World Over 665 Million

According to Netcraft's statistics, by July 2012 they received responses from 665,916,461 sites in the world. From 1995 to 2012, World Internet sites maintained the trend of rapid development (see Figure 1 – 1), bringing more and more strong influence on world economy.

3) World E-commerce Transactions Reaching USD 16 Trillion

The global financial crisis in 2008 did not have a negative impact on E-commerce development; on the contrary, it prompted more people to consume through the convenient and inexpensive online channels. Although the growth in E-commerce transaction volume slowed, it was still higher than the growth of the global economy. Global E-commerce market transactions grew by 40% in 2008, reaching USD 10 trillion for the first time. In 2010, global E-commerce transactions amounted to about USD 20 trillion and passed USD 26 trillion in 2011 (see Figure 1 – 2). The high rate of growth in the global E-commerce market reflected the vitality of E-commerce and its vast prospects.

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① Internetworldstats. com. World Internet Users and Population Stats [EB/OL](2011 – 12 – 31)[2012 – 08 – 20]. Internet World Stats website: http://www. internetworldstats. com/stats. htm.
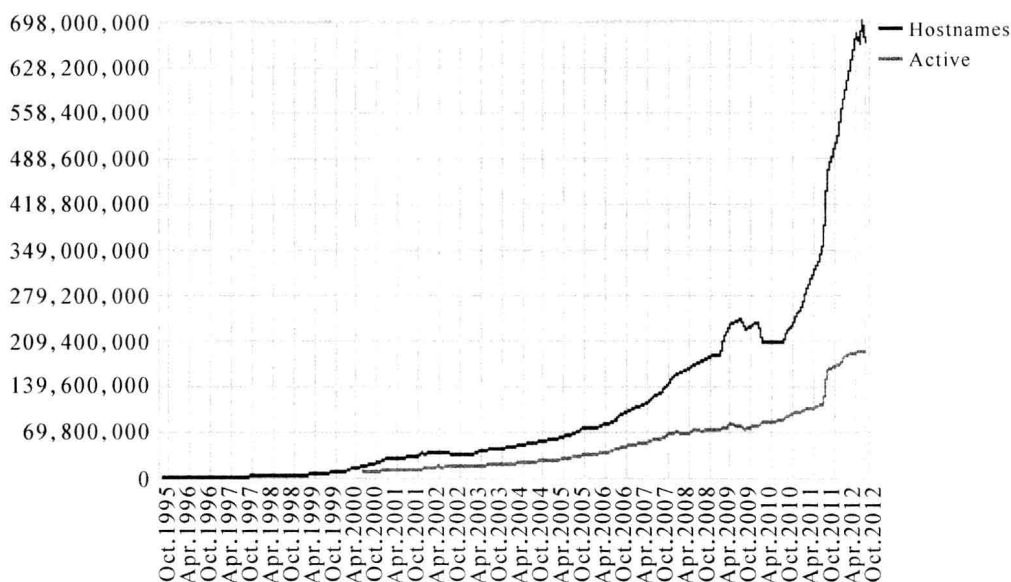
Figure 1 - 1   Total Sites Across All Domains November 1995 — August 2011[①]
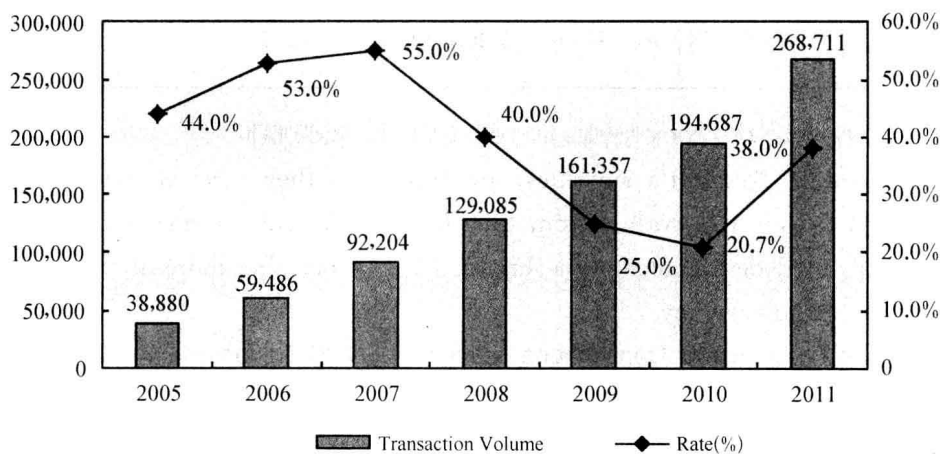
Figure 1 - 2   Volume of Global E-commerce Transactions from 2005 to 2011[②]

2. North America and Europe

As the largest E-commerce market of the world, E-commerce transactions of America reached USD 4,129 billion in 2010, including USD 3,705 billion of B2B, and USD 424 billion of B2C (Table 1 - 2).

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① Netcraft. com. August 2011 Webserver Servey[EB/OL](2011 - 08 - 05)[2011 - 08 - 20]. Netcraft. com Website: http://news. netcraft. com.

② Ministry of Commerce of PRC. China's E-commerce [M]. China's E-commerce. Beijing: Tsinghua University Press. 2012: 5.

Table 1 - 2   U. S. Shipments, Sales, Revenues and E-commerce: 2010 and 2009[①]

Description	Value of Shipments, Sales, or Revenue				Year to Year Percent Change		% Distribution of E-commerce	
	2010		2009		Total	E-commerce	2010	2009
	Total	E-commerce	Total	E-commerce				
Total*	25,599	4,129	23,982	3,545	6.7	16.5	100.0	100.0
B-to-B*	10,690	3,705	9,577	3,161	11.6	17.2	89.7	89.2
Manufacturing	4,917	2,283	4,420	1,892	11.2	20.7	55.3	53.4
Merchant Wholesale	5,773	1,422	5,158	1,269	11.9	12.0	34.4	35.8
Excluding MSBOs	4,132	833	3,699	758	11.7	9.9	20.2	21.4
MSBOs	1,641	589	1,459	511	12.5	15.1	14.3	15.2
B-to-C*	14,908	424	14,404	385	3.5	10.3	10.3	10.8
Retail	3,842	169	3,628	145	5.9	16.3	4.1	4.1
Selected Services	11,067	255	10,777	239	2.7	6.6	6.2	6.7

(Shipments, sales and revenues are in billions of dollars)

According to the statistics of the Census Bureau of the United States, the estimate of U. S. retail E-commerce sales for the 1st quarter of 2012 was USD 53.2 billion, an increase of 3.1% (±1.1%) from the 4th quarter of 2011, and increased 15.4% (±1.2%) from the 1st quarter of 2011 while total retail sales increased 6.5% (±0.7%) in the same period. Figure 1 - 2 shows the high growth of the retail E-commerce sales in America from 1st Quarter 2003 - 1st Quarter 2012.

In 2010, 80% of individuals aged 16 years and older used the Internet for personal use. Significant differences in use rates are based on age, income, location and other factors. In 2010, 51% of Internet users ordered goods or services for personal or household use. In total, Canadians placed nearly 114 million orders, valued at approximately CAD 15.3 billion. [②]

For Europe (including UK), the total E-market was worth EUR 200.52 billion in 2011 (up from EUR 169.63 billion in 2010). Online retailers in only three countries, UK, Germany and France accounted for 71% of European online sales. 2011 online

① U. S. Census Bureau. E-commerce 2010[R/OL](2012 - 03 - 10)[2012 - 08 - 20]. U. S. Census Bureau Website: http://www.census.gov/econ/estats/2010/2010reportfinal.pdf.

② Business Special Surveys and Technology Statistics Division, Canada. Individual Internet use and E-commerce[R/OL](2011 - 10 - 12)[2012 - 08 - 20]. Statistics Canada Website: http://www.statcan.gc.ca/daily-quotidien/111012/dq111012a-eng.htm.
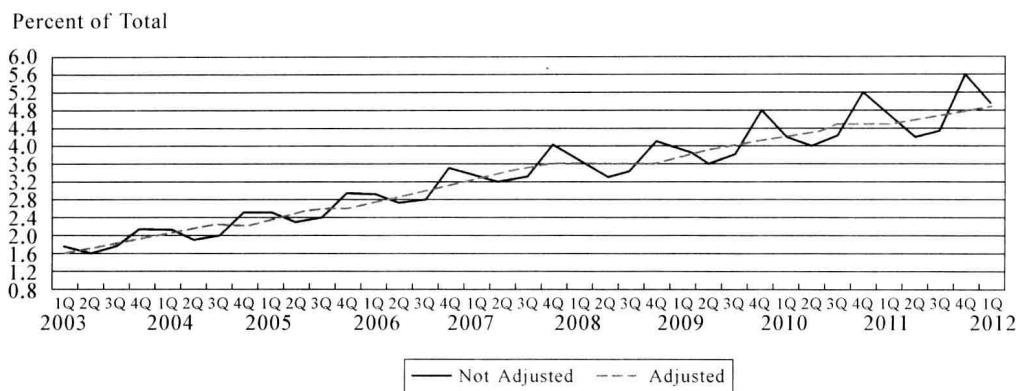
Percent of Total

Figure 1 - 3   Estimated Quarterly U. S. Retail E-commerce Sales as a Percent of Total Quarterly Retail Sales 1st Quarter 2003 - 1st Quarter 2012①

sales in the UK were EUR 59. 4 billion or 12. 0% of UK retail trade. In 2008, online sails was equivalent to only 8. 6% of retail sales. Online sales in Germany were EUR 45. 07 billion, 9. 0% of retail sales (+13% over 2010). In France, where online retailers grew at one of the fastest rates in Europe, 2011 online sales were EUR 38. 66 billion or 7. 3% of retail sales (+24% over 2010). ② Figure1 - 4 shows online share of retail trade in EU.

Online as Percentage of Total Retail Sales 2011
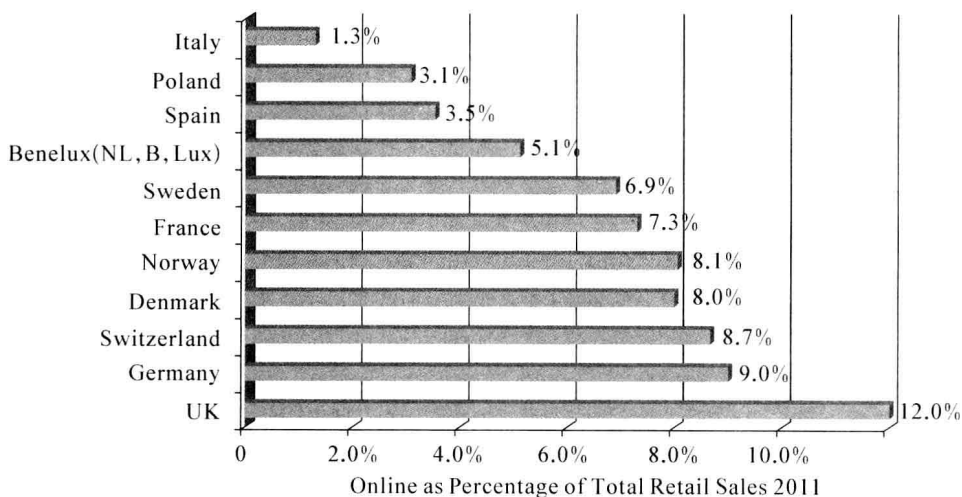
Figure 1 - 4   Online Share of Retail Trade in EU

3. Asia

Asia, with a large population and fast economic development, has the biggest

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① U. S. Census Bureau. Quarterly Retail E-commerce Sales 1st Quarter 2012[R/OL](2012 - 05 - 17)[2012 - 08 - 20]. U. S. Census Bureau Website: http://www. census. gov/retail/mrts/www/data/pdf/ec_current. pdf.

② Retailresearch. Online Retailing: Britain and Europe 2012 [R/OL](2011 - 10 - 12)[2012 - 08 - 20]. Retailresearch Website: http://www. retailresearch. org/onlineretailing. php.

potential for E-commerce development.

After more than ten years' effort, the basic development environment of E-commerce in China gradually improved. By June 30, 2011, the number of Chinese Internet users reached 485 million and the Internet penetration rate reached 36. 2%. Among them, the number of broadband Internet users at home reached 390 million; the number of mobile Internet users reached 318 million. By the end of 2011, China's international outlet bandwidth reached 1,389,529 Mbps, with a growth rate of 17. 5% over the previous year's same period. [1]

By the end of 2011, the number of IPv4 addresses in China reached 330 million, reflecting an annual growth rate of 19%. China is now the world's second-largest possessor of IPv4 addresses, just after the United States. At the same time, the total number of Chinese domain names reached 7. 75 million, with 45. 5% of them being CN domain names. [2]

In 2010 and 2011 E-commerce trade volume of China continuously broke new records. E-commerce trade volume of China reached CNY 4. 550 trillion in 2010, and reached CNY 5. 88 trillion in 2011, increased 28. 4% compared to 2010. Figure 1 – 5 reflects rapid growth trend of China's E-commerce trade volume year after year. [3]
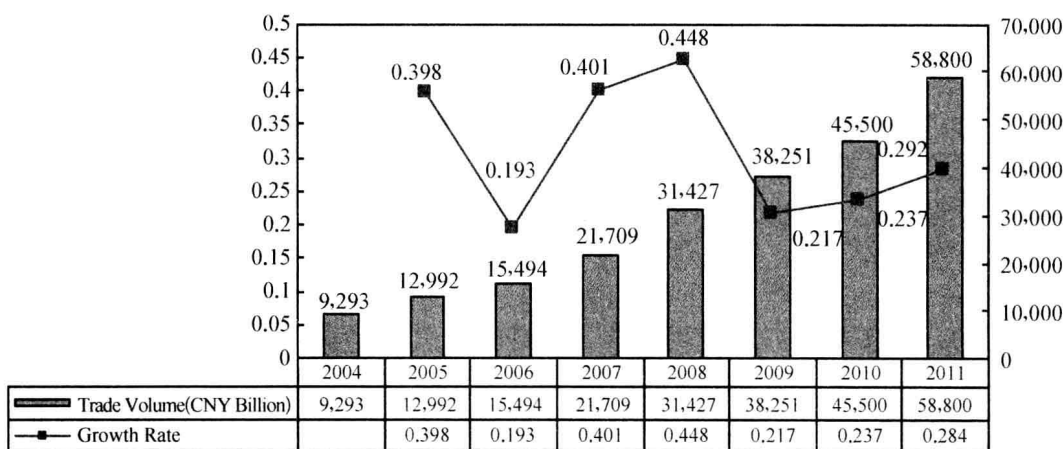
	2004	2005	2006	2007	2008	2009	2010	2011
Trade Volume(CNY Billion)	9,293	12,992	15,494	21,709	31,427	38,251	45,500	58,800
Growth Rate		0.398	0.193	0.401	0.448	0.217	0.237	0.284

Figure 1 – 5   Rapid Growth Trend of China's E-commerce Trade Volume

By the end of December, 2011, the number of Japanese Internet users reached

[1]   China Internet Network Information Center. The 29th Survey Report on the Internet Development in China [R/OL] (2012 – 01 – 16) [2011 – 08 – 20]. China Internet Network Information Center website: http://www. cnnic. cn/dtygg/dtgg/201201/W020120116337628870651. pdf.

[2]   China Internet Network Information Center. The 29th Survey Report on the Internet Development in China [R/OL] (2012 – 01 – 16) [2011 – 08 – 20]. China Internet Network Information Center website: http://www. cnnic. cn/dtygg/dtgg/201201/W020120116337628870651. pdf.

[3]   China's Ministry of Commerce. China's E-commerce [M]. Beijing: Qinghua University Press. 2012: 2.