4

E-Commerce Strategy in Enterprises

Enterprises are the main body of economic activities. By this analogy, enterprises are the main body of e-commerce for certain. Without the participation of enterprises, a national e-commerce strategy would only be discarded even if it is the best.

As one kind of business activity through electronic communication, e-commerce has brought many kinds of advantages to the development of enterprises. From a transaction perspective, it not only improves the efficiency of business activities but also reduces the cost. From a management perspective, e-commerce strengthens the cooperation with enterprises as well as providing new business models and opportunities. E-commerce is a trend now. In the new market environment, enterprises are facing new opportunities and challenges. If enterprises fail to adapt to change, it is impossible for them to survive. "Many have argued that the Internet renders strategy obsolete. In reality, the opposite is true. Because the Internet tends to weaken industrial profitability without providing proprietary operational advantages, it is more important than ever for companies to distinguish themselves through strategy. The winners will be those that view the Internet as a complement to, not a cannibal of, traditional ways of competing." Michael E. Porter (2010) emphasized[1].

In e-commerce times, traditional enterprises should restructure themselves and adopt proper e-commerce strategies or else be knocked out. In this respect, there are some typical examples such as GE, IBM, and Haier, etc. Besides, e-commerce has prompted enterprises with new business models, represented by Google and Taobao. No matter the former or the latter, all of them have make a good use of the Internet, make positive innovations to improve efficiency and have strengthened worldwide cooperation with efficient management mechanisms.

Since the Internet and e-commerce have a great impact on business practices and tend to change several industrial structures, enterprises and companies have no more choice. How to formulate an excellent e-commerce strategy and how to practice the strategy becomes the highlight of every company.

E-commerce aims at improving competitiveness, management power and technological innovation. When enterprises formulate e-commerce strategy, they should pay much attention to the product and the market. Firstly, the core of

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business activities is the product, including real products and the virtual ones, like services. Owning efficient and advanced product policies contributes a lot. Especially in an age of fast information spread and advanced logistics, products can be distributed to segments in a short time. If the analysis of the product is not correct, it is possible to cause a disaster through the chain effect. Secondly, analyzing the market is also important. E-commerce has expanded the scope for sales and renewal, but also has increased the competition and the uncertainty of one product. Once a product comes out, people will rapidly become familiar with it through e-commerce and copy it. Due to the homogeneity of the network environment, the similarity among products obviously increases. Only with proper market analysis, can enterprises make a difference.

When it comes to the implementation of e-commerce strategy, enterprises should make a maximum utilization of various high-quality resources including finance, technology, equipment and humans, to highlight the strategic core. During this process, how to optimize the resource allocation and how to apply e-commerce technically are all determined by the recognition of the resources. So enterprises should cultivate a great number of e-commerce professionals. But we should remember that any technology is just a tool. Only when it is tightly connected with the business and operation will the advantages of e-commerce be represented.

Although the above common points exist, e-commerce strategy still differs according to industrial properties and enterprises' characteristics. Details of typical enterprises adopting e-commerce well will be presented in the following sections.

4.1 IBM: Are You Ready for E-Commerce?

International Business Machines (IBM), nicknamed "Big Blue", is a multinational computer, technology and IT consulting corporation headquartered in Armonk, New York, United States[2]. IBM manufactures and sells computer hardware and software, and offers IT services, application services, outsourcing services, consulting services and training services in areas ranging from mainframe computers to nanotechnology. With over 426,000 employees worldwide, IBM is the largest (by market capitalization)[3] and the most profitable[4] software & services company around the world according to *The Forbes 2000* with sales of more than 109 billion US dollars. To take social responsibility, IBM's Corporate Service Corps (CSC) has sent over 1,400 IBMers from 50 countries to more than 20 emerging markets[5] delivering high quality problem solving for communities and organizations since its launch in 2008.

4.1.1 History of IBM

IBM is one of the few information technology companies with a continuous history dating back to the late 1880s, decades before the development of electronic computers. The company, which later became IBM, was founded in 1896 as the Tabulating Machine Company in Broome County, New York. On June 16, 1911, Computing Tabulating Recording (CTR) Corporation, the precursor to IBM, was incorporated through a merger of the Tabulating Machine Company (with origins in Washington, D.C. in the 1880s) and two other companies: the International Time Recording Company (founded 1900 in Endicott), and the Computing Scale Corporation (founded 1901 in Dayton, Ohio, USA). In 1914, Thomas J. Watson Sr. joined CTR, which then had 1,346 employees and $9 million in revenues. Over the next two decades, Thomas J. transformed CTR into a growing leader of innovation and technology and a prototype for the newly emergent multinational corporation. This shift was signaled in 1924, when the company's name finally changed to International Business Machines Corporation (IBM)[6].

During World War II, IBM took the first step towards computing. In 1944, IBM introduced to Harvard University the world's first large-scale calculating computer, the Automatic Sequence Control Calculator (ASCC), also known as the Mark I, which used electromechanical relays to solve addition problems in less than 1 s, multiplication in 6 s, and division in 12 s[7]. But since the computers had just been built, company leaders did not realize the good prospects, even stating that: "I think there is a world market for maybe five computers". With lack of enough foresight, IBM missed a good opportunity to enter the computer field. By the late 1940 s had IBM recognized the significance of the technology, had taken effective measures and caught up fast to squeeze into the computer market. In 1951, IBM decided to develop commercial computers and invited Von Neumann as the scientific advisor. In December 1952, IBM introduced the 701, its first stored program computer and its first large-scale electronic computer to be manufactured in quantity, which carried IBMers into the electronics business[8]. Till 1967 IBM controlled 76% of the computer market. The Apollo 11 astronauts made the first manned landing on the Moon with the help of IBM computers. In 1971 IBM computers helped guide the Apollo 14 and Apollo 15 Moon landings. One year later, Apollo 16 and Apollo 17, the final missions in the Moon-landing series, were also supported by IBM personnel and products [9], which demonstrated the great power of IBM computers. In 1981, IBM successfully developed the world's first Personal Computer (PC), which helped IBM gain the "Person of the Year" award in TIME Magazine a year later. From 1986 to 1987, four fellows of the IBM Zurich Research Laboratory won the Nobel Prize. In 1980 – 1984 IBM spent $28 million in total on electronic computer development and infrastructure construction, equivalent to 14 times the total cost of the Manhattan Project. IBM was never absent from any major inventions in information technology. The Data Encryption Standard (DES) in America was a representative achievement. In the research into superconducting materials, IBM research personnel also created exciting and outstanding achievements.

Since the foundation of IBM, the company has always led the development direction of the global information industry with advanced technologies, excellent management and unique products. In the development process of over 100 years, IBM has created lots of "firsts" in the computer industry: IBM was the first to manufacture hardware and software separately and thus gave birth to the software and hardware industry; IBM produced the famous Deep Blue Supercomputer; IBM firstly put forward the concept of E-business; IBM built the world's first prototype of the quantum computer. As the biggest multinational company in the information industry, IBM is worthy of "Big Blue". Depending on continuous innovation, IBM is now taking the leading position in the information industry, and has many splendid accomplishments. But the process is not easy at all. IBM has survived in a life-and-death struggle. The key events in the history of IBM are listed below.

- 1896: Herman Hollerith established the Tabulating Machine Company, what was later merged into IBM.
- 1911: The combined Computing Tabulating Recording Company (CTR), the precursor to IBM was founded.
- 1914: The young salesman Thomas J. Watson Sr. was hired by CTR. Ten years later he founded the "Big Blue" IBM.
- 1924: CTR's name was formally changed to International Business Machines Corporation (IBM).
- 1928: A punch card named "IBM CARD" was developed.
- 1944: The world's first large-scale calculating computer, the Automatic Sequence Control Calculator (ASCC), was introduced by IBM.
- 1948: IBM's first large-scale digital calculating machine, the Selective Sequence Electronic Calculator (SSEC), was announced.
- 1956: IBM introduces the world's first magnetic hard disk for data storage: Random Access Method of Accounting and Control (RAMAC).
- 1964: In the most important product announcement in company history to date, IBM introduces the IBM System/360.
- 1968: The Customer Information Control System (CICS) transaction monitor was developed by IBM.
- 1976: IBM built flight computers and special hardware for the first vehicle in the U.S. Space Shuttle program.
- 1981: The IBM Personal Computer went to mass market.
- 1983: IBM announced PC-DOS2.0.
- 1986: IBM put forward its first memory chip with storage of 1 MB.
- 1989: IBM introduced the System/390 family, which was its most comprehensive product announcement in 25 years.
- 1989: IBM and Microsoft announced joint support for the competitive operating system OS/2 and Windows.
- 1991: IBM introduced the notebook computer with the function of wireless communication.
- 1992: IBM introduced a new line of notebook computers with the innovative TrackPoint nestled in the middle of the keyboard. In the same year, IBM

announced another new product: Personal Digital Assistant (PDA).

- 1993: IBM declared its first losses of a billion dollars.
- 1995: IBM announced plans on the Internet to strengthen the force of Internet access.
- 1997: The 32-node IBM RS/6000 SP supercomputer, Deep Blue, defeated World Chess Champion Garry Kasparov.
- 1997: IBM defined a new industry by using the Internet as a medium for real business and institutional transformation: E-business.
- 2002: eServer i890 was launched.
- 2005: The PC division (including Thinkpads) was sold to Chinese manufacturer, Lenovo.
- 2009: IBM announced its watershed project: Smarter Planet.
- 2010: At the end of May 2010, IBM bought the Sterling Commerce Unit from AT&T for about $1.4 billion. This is the second largest acquisition by IBM.

Each IBM success has pushed forward the development of the global information industry. At the same time, each setback has caused the whole information industry to think deeply. The most severe test for IBM occurred in the 1990s. With the danger of financial collapse in the background, IBM's e-commerce strategy was formulated.

4.1.2 Background of IBM's E-Commerce Strategy

As mentioned above, in the 1970s IBM took the lead to separate software from hardware, which brought us today's Microsoft and Intel. In 1981 IBM introduced the world's first PC that raised the curtain on the age of "Ubiquitous Computing". It may be said that the IBM PC was a golden egg for the information industry, but for IBM itself the PC nearly became a grave digger. Before the PC was introduced, IBM had been dominating the mainframe market for a long time. The development and production of the mainframe had always been the core of IBM's business. As a result, although IBM developed PCs, the company did not pay enough attention to them. Hewlett-Packard (HP) exploited this weak point and produced PCs in quantity. With the development of microelectronics technology, the performance of PCs was constantly improved and formed a serious challenge to the mainframe computer, leading to the decline of both relative demand and absolute demand for the mainframe by a wide margin. As an overstaffed organization with rigid and centralized management at that time, IBM did not realize this problem in time. Therefore the company failed to adapt to the great changes in market demand and the technical issues and still focused on research, development and production of mainframes. Meanwhile, after spending a lot of money on buying IBM's mainframes, many enterprises found that those mainframes did not work as expected, due to various reasons. Hence enterprises hoped that IBM would use its own advantage to help them solve the various problems encountered in the use of their mainframes. Since the quality of IBM's

products has been acknowledged by the world, IBM were opinionated and ignored the needs of those enterprises. IBM thought that the quality problem of mainframes belonged to IBM, while whether enterprises could well use the mainframes or not was the enterprises' own problems. This led to the overall nervous relationship between customers and IBM. In the rapid development of the mainframe market in the 1960s, the market was then dominated by sellers. The relationship with customers did not affect the sales of IBM's mainframes. When it came to the 1980s, the situation was completely different: except for the nervous relations, the sales of mainframes showed overall atrophy. What's more, IBM was unresponsive to the rapidly expanding demand in the PC market. By the time that IBM recognized the problem, it had lost the game and fell from being a pioneer in the market and technology to be just a follower, with the global computer market share declining from 36% to 23%. To reverse the tide, IBM began mass production of PCs following HP. But the present cannot compare with the past. In the software industry Microsoft was booming; as to the PC hardware, HP pushed IBM into a corner by price superiority. From 1990 to 1993, IBM was hit by its fourth straight year of billion dollar losses. In 1993 IBM lost $8.1 billion, which hit the bottom line hard, and its stock also hit the lowest level of $12.09. From 1986 to 1993, in just seven years, IBM's stock value reduced by $75 billion and almost all investors lost confidence in IBM. Some media described IBM as a man with one foot stepping into the grave. To bring IBM back from the brink of insolvency into the forefront of the computer business, IBM's then chairman tried to greatly increase the PC output and reduce the production of mainframes, meanwhile dividing IBM into 13 divisions. Each division enjoyed decision-making autonomy, to solve the overstaffing problems and bureaucracy in IBM. But unfortunately the entire endeavor did not turn back IBM's declining tendency. To leave IBM's dying, or to help IBM rise from its ashes like a phoenix? In this life and death choice, indomitable IBMers have chosen the latter. It was with such a macro background that IBM's e-commerce strategy was put forward.

4.1.3 Contents of IBM's E-Commerce Strategy

In April 1993, when the gargantuan company was near collapse, Louis V. Gerstner, Jr. became IBM's chairman and CEO. He analyzed carefully the competitive environment to be confronted by IBM and the growing trend of information technology. Gerstner realized that IBM could not compete with Microsoft in software production; moreover IBM was greatly behind HP in hardware. From the perspective of the developing trend of information technology, Gerstner recognized that the Internet, which integrated hardware and software together, would become an infrastructure of human society in the future. What's more, there were no rivals at this point. Gerstner had previously spent 11 years (1977 – 1989) as a top executive at American Express Co. This experience had given Gerstner a lot. He had learnt the power of e-commerce at least 20 years ahead of

most people. Millions of people could go shopping and enjoy a variety of services just with the American Express Card. Each time a customer paid with the credit card, one electronic transaction was done. It was the global data processing center that makes "a card travels the world", and it was IBM that provided the technical support to this magical transaction model. So once the Internet was introduced, Mr. Gerstner immediately recognized that the mode of transactions applied by American Express Co. would become common, from which IBM could obtain enormous business opportunities. It was a godsend for IBM to lead the information industry once again. Having been the IBM's customer for 11 years, Gerstner profoundly tasted the sweetness and bitterness of being an IBM customer. He was aware of customer requirements more than any IBMer and knew how to make IBM's products and services better.

Based on the analysis of customer demand, competitive environment, the developing trend of technology and their own advantages, IBMers formulated e-commerce strategy for themselves.

(1) Changing from providing products to providing services to society

For a long time, the equipment suppliers and software vendors were only responsible for providing customers with needed equipment and software, but totally lacked concern for how to use them and whether they could be used by enterprises. A large number of enterprises spared no effort to invest in equipment and unrelated software programs, which caused lots of remaining problems calling for urgent settlement. IBM's indifferent attitude to these problems resulted in a nervous customer relationship and also a reduced need for equipment together with a growing demand for service. After recalling the painful experience, IBMers decided to transfer the strategic target to services, so as to promote sales, to promote the improvement of the relationship with customers, and to further stabilize customers and extend the market.

(2) Embracing the Internet overall

Mr. Gerstner noticed that young people were highly keen on the Internet, which indicated its vast potential for future development. The Internet could not only provide convenience for sharing information and communication, but also should be developed into a platform on which to deal with many things in the future. The most important and far-sighted opinion of Mr. Gerstner was that future business activities would be done on the Internet, which would have a far-reaching influence on human society. So he made a wise decision to embrace the Internet overall. In 1996 IBM decided that in the following years IBM would focus on applications of the Internet to make the users capable of managing companies and even conducting transactions on the Internet. That was the initial concept of e-commerce.

(3) Vigorously developing e-commerce infrastructure

Mr. Gerstner thought it impossible that e-commerce could be created out of nothing, or fall down from the sky. In order to develop the real e-commerce, it was necessary to develop the e-commerce infrastructures, including the reform and informationization of business processes, the informationization of Enterprise Resource Planning (ERP), the modernization of Customer Relationship

Management (CRM), the modernization of Supply Chain Management (SCM) and the construction of enterprises' internal networks. All of the above belonged to IBM's strong points, and therefore the company decided to develop e-commerce infrastructure vigorously.

(4) Developing middleware applied in e-commerce

When the enterprise informatization developed to a certain extent, lots of problems like incompatible software and mis-mated hardware would appear, leading to systems that could not continue their normal work or operated with difficulty. IBM hoped to develop some new software systems acting as the connector or interpreter for communications between all the other different software systems. As soon as users become familiar with the skills of communicating with IBM new software systems, they can use all the other bottom-layer software lucidly. The new software systems nowadays are named software middleware. As a strategic decision, IBM decided to develop software middleware which would be applied in e-commerce.

4.1.4 Measures

How to help customers effectively use the already purchased hardware devices became the breakthrough when IBM chose to provide services. Because of this choice, IBM needed to additionally supply software for controlling devices to customers who had purchased devices already, and meanwhile provide new customers with both devices and controlling software. From then on IBM was no longer just an equipment manufacturer, but also a software producer exploring the functions of devices for users. For the implementation of the strategy to transform from providing products to providing services, IBM Software Group was formed by the merger of once three independent departments: software solutions, individual software products and network software. With the market analysis and their own experience, IBM recognized that their devices can be used in many fields. To coordinate with the hardware, CRM was necessary to help enterprises establish and maintain a good customer relationship; ERP was needed to help enterprises to improve business flows and realize the enterprise resource reorganization to get the greatest benefit; SCM was required to assist enterprises to improve the supply and sales process. IBM proposed to provide users not only with the best equipment, but also with the best software. If IBMers could not produce one kind of software, they would purchase such products, even from the competitors; then if possible, just takeover these manufacturers. Under this guidance, IBM successfully completed some acquisitions of SCM, ERP and CRM software manufacturers, which ensured the high-quality software and services.

In 2003, soon after retiring from IBM, Mr. Gerstner delivered a speech in Harvard University, in which he denied his contribution to save IBM. He insisted that it was the Internet that took IBM away from the brink of death, and if there were no new business opportunities created by the Internet, IBM would

unavoidably collapse. Actually Mr. Gerstner only said half the truth. The Internet, which is like a double-edged sword, has double effects. It does provide good opportunities to IBM, but it also pushes companies that make bad use of the Internet to a faster death. Fortunately IBM caught this chance and therefore realized its rebirth.

Embracing the Internet from all sides was the core of IBM's e-commerce strategy. The specific methods are: initiatively making use of the Internet, supplying hardware and software support to customers on the Internet; developing various Internet software applications to help customers manage their companies and do business on the Internet. IBM emphasizes the importance of developing e-commerce by utilizing the Internet. As a result IBM can offer complete e-commerce solutions integrating both hardware and software systems. This business model, different from neither the price competition between hardware franchised stores, nor the upgrade to the latest version of software systems, is aimed at helping customers establish the infrastructure adapted to the development of the information society, so as to offer facilities to enterprises for carrying out more business activities on the Internet faster, better and cheaper.

It is actually a premise for online business to vigorously develop an e-commerce infrastructure. If there is no corresponding infrastructure, what is called e-commerce is nothing but another version of EDI, at most adding some information sharing function. Based on the ideological understanding, IBM concentrates on developing basic software facilities for e-commerce. These basic software systems include:

- CRM. CRM helps enterprises to establish and optimize the business process, to accelerate the response speed of customer service and support and to enhance customers' satisfaction and loyalty.
- ERP. ERP helps enterprises to realize the integration of logistics and the fund flow and to eliminate the unreasonable part of resources utilization, which makes the resource utilization more reasonable, management more scientific.
- SCM. SCM helps customers improve their supply, production, inventory and sales and make a more rapid and precise electronic communication with suppliers and dealers. In this way SCM makes information sharing and decision support come true to guarantee the efficient operation of the entire supply chain.
- TRS. As a database retrieval system of good performance, TRS can be applied to many fields and plays an important role in data management.
- Firewall is the first step in realizing information security, like an entrance guard for the information community, is one of the infrastructures for keeping information safe.
- Office Automation (OA). OA is a software system developed especially for office automation which ensures high efficiency and quality.
- Web Hosting. It breaks through the limits of time and space, and then provides customers with interactive and personalized services.
- E-mail. The robust email management system offered by IBM is a foundational tool to guarantee the smooth information flow and exchange.

In addition, IBM also provides traditional basic hardware devices like the IBM

memory system, IBM PC, IBM mainframes, etc.

Middleware is a bridge that connects operating systems, databases and network applications. In a network environment, middleware sits in the "middle" between network applications and operating systems. In process of informatization construction, enterprises spent a lot of money on buying various hardware devices and software products, especially on operating systems. Due to the differences in the time of informatization construction and the hardware or software vendors, one software system differed from another in enterprises. When these different systems operated independently, enterprises could still cope with them. Once the information systems got access to the Internet, serious defects were exposed. Differing in thousands of ways, network applications were all developed on the corresponding platform in different operating systems. They can work very well on but only on the development platforms, which means that in the other operating systems they may not work at all. Purchasing and installing new operating systems and database would cause not only huge economic waste, but also great difficulties in management. Numbers of enterprises fell into deep trouble. Caught at this very point, IBM decided to develop middleware to coordinate different applications, operating systems and database platforms so that all software systems could work together. IBM hoped its middleware would become the lubricant layer between different operating systems and hardware devices, so as to solve the problems most enterprises were facing. Under the guidance of this principle, IBM strove to develop relevant middleware software. Within ten years IBM has grown into the biggest middleware manufacturer. Since 2003, IBM Software Group has totally completed more than 70 acquisitions[10] that has expanded its scale to become the world's second largest software company only second to Microsoft, making about 45% of the $185 Trefis price estimate for IBM [11]. Foundational middleware products of IBM include:

- WebSphere software

WebSphere is a software system working for the reshuffle and integration of enterprises. Specifically speaking, it is software for SOA environments that enables dynamic, interconnected business processes, and delivers highly effective application infrastructures for all business situations[12]. As the basic platform of IBM's middleware software, WebSphere is the needed IT architecture. Based on WebSphere customers can conduct electronic business affairs. E-commerce, Business Intelligence (BI), CRM and SCM all belong to this platform. In the USA, 90% of top-level commercial banks, 15 stocks and securities brokerages in Wall Street, 87.5% of the biggest domestic telecom companies and 80% of the top insurance companies are using WebSphere. By the third quarter of 2011, WebSphere had created three consecutive quarterly growths of more than 50%, leading all product lines of IBM. Featured WebSphere products are WebSphere ILOG JRules, WebSphere Application Server, WebSphere Portal Server, WebSphere Process Server, WebSphere Studio, WebSphere MQSeries, VisualAge, CICS and so on.

- DB2 software

As a main database software product of IBM, DB2 offers leading industry

performance, scale and reliability on your choice of platform from Linux to z/OS[13]. About 70% of global data are managed by IBM software installed in IBM servers. Data management will still be an area of high-speed growth in IBM. The company has become the fastest growing database provider in the industry, twice as fast as the average. The core products of DB2 include DB2 Universal Database, IBM Content Manager, DB2 OLAP (Online Analytical Processing) Server, DB2 Everyplace, IBM DB2 Date Warehouse Center, IBM Enterprise Information Portal and HotMedia.

- Lotus software

IBM Lotus Software delivers robust collaboration software that empowers people to connect, collaborate and innovate while optimizing the way they work[14]. With Lotus people can drive better business outcomes through smarter collaboration with business partners, suppliers, employees and customers on the web, taking full advantage of e-commerce. Cataloged as knowledge utilization software, the main function of Lotus software is to mobilize the collective wisdom for improving the speed of response and boosting innovations. Among these products, the software series of the cooperation and network application server Lotus Notes/Domino achieves a compound growth rate of 12%. In the field of e-mail and messages, Lotus Notes possesses over 90 million users. The software products in the Lotus series are Domino, Notes, Knowledge Management, Learning Space Same Time, Quick Place, SmartSuite etc.

- Tivoli software

Along with the expansion of technical resources and the gradual development progress of e-commerce, systems in companies turn out to be more and more complex. While the multiplicity of platforms and the diversity of systems are increasing, enterprises are having an increased number of users as well as decreasing IT staff. Therefore the management for companies' systems is more important day by day. Tivoli software, IBM Integrated Service Management, provides smarter solutions and the expertise customers need to design, build and manage dynamic infrastructures that enables them to improve service, reduce cost and manage risk [15]. With the assistance of Tivoli software system, CIOs can exercise centralized management of all technical resources, thus improve the efficiency of IT staff and leave them more time for other jobs. The key products of this series include IBM Tivoli Business Service Manager, IBM Tivoli e-Marketplace Manager, IBM Tivoli Point-of-Sale Manager, IBM Tivoli Security Information, Tivoli SANergy, Tivoli NetView, IBM Tivoli Netcool/OMNIbus, Tivoli Network Manager, Tivoli Internet Services Manager, IBM Tivoli Storage Manager and so on.

On the basis of IBM middleware software, IBM also introduces several packaged solutions orienting 12 industries including financial, banking, insurance, retail, medical treatment and public health, life science, telecommunications, electronics, automobile, consumption goods, energy and public utilities and government agencies. These solutions have effectively sustained the development of industrial e-commerce, meanwhile helping IBM firmly occupy the e-commerce market and become the undisputed overlord in the field of e-commerce.

It must be pointed out that although the IBM e-commerce strategy is foresighted and complete, the implementation and propaganda of the strategy are divided into several steps. In its move to provide services, IBM did not let any competitor smell the flavor of e-commerce. At the beginning, IBM was constructing e-commerce needed infrastructures for users in a down-to-earth manner. Then many enterprises introduced these infrastructures after e-commerce infrastructures were built. At the same time, the Internet was already well equipped for the development of e-commerce. Since everything was ready, IBM raised its hand and issued a rousing call in 1988 with a resounding advertisement "Are you ready for e-business". As soon as the advertisement came out, an industrial revolution represented by e-business got a positive response from governments, enterprises and individuals around the world, which all rely on IBM e-commerce infrastructures. From then on, IBM began to enjoy the infinite interest that e-commerce brought for it.

4.1.5 Strategic Positioning and Implementation

In the early 1990s, nearly all people felt IBM was no longer a viable player in the industry. The formulation of IBM e-commerce strategy is exactly for the revitalization of IBM. IBMers plan to use e-commerce to regain the leading position in the information industry and turn into the IT pioneer once again, which insures IBM will be back at number one in the Internet era. From such a strategic positioning, the manner, courage and insight of this Big Blue can be seen distinctly.

The facts speak for themselves: IBMers have made it. In 2004 the operating revenue of IBM reached $96.5 billion USD and the operating profit came to about $8 billion. What's more important was that IBM found the way forward for itself. IBM established a close alliance with large enterprises around the world, which laid a solid foundation for further development.

The only pity is that IBM had bad dealings with individual customers. The PC, the permanent pain for IBM, almost put an end to IBM in the 1980s – 1990s. From the late 1990s to the beginning of the 21st century, the PC, which never brought good luck to IBM, became a heavy financial burden once again. To coordinate with the strategic transformation from providing products to providing services, IBM recombined all its business through various means like mergers, division and divestment, so as to highlight the core business adapting to the global competitive environment. In the field of software and consultancy, IBM launched large-scale acquisitions to step into new domains in the shortest time. For example, in the field of software, IBM mainly focused on enterprises with core technical innovations, especially those influential enterprises in the middleware and database market. On December 6th, 2002, IBM took over Rational, a software company supplying test, design and management products for $2.1 billion, and formed a strategic alliance with Edwards, which specially provided commercial

application software to SMEs. With regard to the non-core business, hardware which caused a heavy economic burden, IBM adopted active pruning measures. IBM negotiated with Hitachi about transferring hard disk business departments to Hitachi for $2.05 billion in 2002. In December 2004, IBM sold its PC business to Lenovo at a price of $1.25 billion.

The transaction of the IBM PC department is of great significance, no matter to IBM or to Lenovo. Via this acquisition, Lenovo has soared to third largest worldwide PC manufacturer next to DELL and HP. At the same time, this transfer of possession means IBM has taken a key step towards the final strategic transformation through 6 years of effort. It can even be said that the victory of IBM strategic transformation is in sight.

According to the fourth quarter and the entire fiscal year of 2008 announced on January 20th, 2009 in the USA, the gross sales of IBM during 2008 (fiscal year) reached $103.6 billion USD, 5% more than 2007, 2% more excluding rate of exchange. The net profit was $12.3 billion with a comparative growth rate of 18%. So far, no matter in terms of business operation or corporate image, IBM has successful transformed from a hardware manufacturer to an information technology services company that solves problems for customers. On May 18th 2010 Gartner, Inc. released a core research note that proposed Magic Quadrant for e-commerce[16] (Fig. 4.1). Compared with many well-known congeneric products, IBM Websphere Commerce was located in the "leaders" quadrant, superior to almost all competitors.

It is expected that the new IBM without the PC burden will travel to a more brilliant future. Meanwhile, Lenovo, the company starting out in sales of PC's, will make full use of its own superiority in the hardware market and the brand advantage of IBM to build up another global information giant.

IBM's e-commerce strategy enlightens everyone: innovation is the soul of an enterprise, especially an enterprise leading the industry. Any enterprise that wants to develop cannot live without continuous innovation. In other words, once the innovation stops, an enterprise will travel towards a standstill, even death. As a result, taking innovation as the soul of an enterprise should be kept in mind and the formulation of strategies must conform to the developing trends of society. That is why IBM's strategy has met with success. It accords with the developing direction of the Internet and related technologies, as well as the developing trend of society. What's more important, the correct strategy has been executed unhesitatingly and persistently. To formulate a correct strategy is not easy, while the implementation of a strategy has proved to be more difficult because of underlying resistance. It is necessary to capture the breakthrough point, and then carry out those established strategies drastically. Sound strategies including e-commerce strategy have created a huge stage for the elephant named IBM to dance.

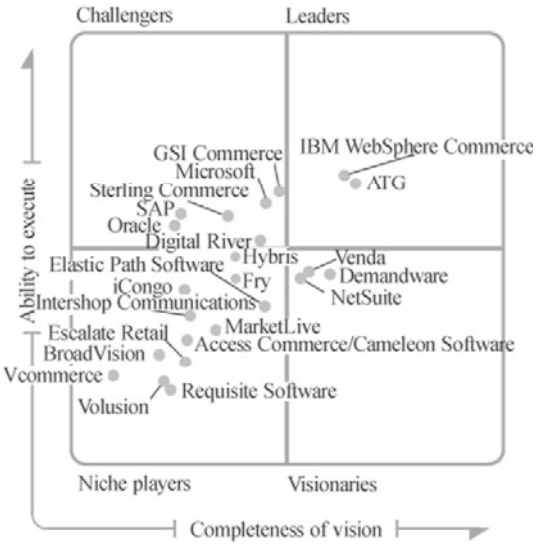

Fig. 4.1 Magic Quadrant for e-commerce
(Source: Gartner; May 2010)

4.2 GE: Revolution in Traditional Industry

As the giant in the IT industry, IBM's e-commerce strategy serves as a reference for enterprises in the information industry. How about traditional enterprises? How should they formulate their own e-commerce strategies? Now let us take a look at GE's e-commerce strategy. From IBM, we have found that an enterprise must adapt to market change, otherwise it would soon be eliminated. GE actively takes actions to meet the needs of the market and develop itself into the world's second biggest manufacturer. Although GE and IBM are totally different enterprises, there are some similarities which can bring us much inspiration.

4.2.1 GE: the Giant in Traditional Industry

GE is an American multinational corporation headquartered in Fairfield. GE was established by Thomas Edison in 1880s. At the beginning, there were only dozens of employees and a few hundred thousand dollars. Now GE has developed a multinational corporation with 304,000 employees and $782 billion total assets. In 2010, the revenue of GE was $150 billion with a net income of $12.6 billion. GE's divisions include GE Capital, GE Energy, GE Technology Infrastructure, NBC Universal and GE Home & Business Solutions. Through these businesses, GE participates in a wide variety of markets including the generation, transmission

and distribution of electricity, lighting, industrial automation, medical imaging equipment, motors, railway locomotives, aircraft jet engines, and aviation services [17].

Different from IBM, GE has been developing very smoothly although it also went through many historical turning points. GE has been constantly taking action to adapt to changes in the market and realize development unceasingly.

As far as GE, we have to talk about "six Sigma", the management guideline of GE. "Sigma" is a statistical term used to measure the deviation. The "six Sigma" seeks to improve the quality of process outputs by identifying and removing causes of defects, and minimizing the variability in manufacturing and business processes. A set of quality management methods including statistical methods are used in the process to create a special infrastructure[18]. Although the "six Sigma" was originally developed by Motorola, GE is the best to make use of "six Sigma". Now GE uses the "six Sigma" throughout everything the staff do and every product GE designs. The "six Sigma" has become GE's operation mode. Because a six-sigma process is one in which 99.99966% of the products manufactured are statistically expected to be free of defects, the "six-Sigma" effectively guarantees the stability of the product quality.

Culture is one of the key factors to success. GE's culture is well worth all business personnel learning about. GE's culture mainly includes: adhere to honesty, pay attention to the performance, be eager to change, measure the success by customers' success, insist on "six Sigma" quality standards and keep innovating. Meanwhile the culture helps GE quickly adapt to e-commerce trends faced with the shock of e-commerce.

In the 1980s, with more and more fierce competition, enterprises could not earn profits just by grabbing market share. Welch, GE's chairman, was keenly aware that in such a market environment, the potential of value growth had transferred from the market share to customer services and the profit had transferred from the product itself to the process after products were sold. So Welch launched the timely idea of providing the total solution for customers and put it into practice, which was ten years earlier than IBM. The so-called solution was to provide services besides products. With regard to IBM, the service was to solve actual problems by making use of IBM's mainframes and PCs. For GE, the service was to solve actual problems when using GE's products, especially financial services. GE was able to provide consumers, producers and middlemen with a wide variety of financial services such as all kinds of insurance for enterprises and individuals, provide credit operations for retailers holding credit cards, automobile leasing and renting for dealers and saving business for consumers.

When people were all attracted by IBM, Microsoft, Intel, Yahoo, Amazon, Google, Cisco and other Internet enterprises, GE shocked those who worshiped the new economy again. In 2000, GE was named as "E-Business of The Year" by Internet Weekly Magazine, America's most famous Internet and information technology magazine. The chief editor said "the main cause of GE's success was that GE had transferred its sales and investment of billions of dollars to the Internet at the fastest speed". In addition, GE has high corporate recognition. In

2004, GE was named as No.1 Company for employers and employees on the Forbes 500 Global Player list. In Fortune Magazine's 2005 "Global Most Admired Companies" list, GE ranked first overall. In 2006 and 2007, GE ranked No.1 in Fortune Magazine's "America's Most Admired Companies" list again[19,20].

4.2.2 Background of GE's E-Commerce Strategy

Implementing e-commerce is GE's another active action of adapting to social development and market reform. Different from IBM's background of passively taking actions, GE is totally active. Welch was called the greatest manager in the 20th century. One of his important guiding principles is to change before you have to.

At first, Welch did not recognize the importance of e-commerce. At that time, many people doubted whether e-commerce could make money. Even some people were afraid of computers and the Internet. One member of Daimler Chrysler Board, Jurgen Hubbert had even said "Why jump into this business when nobody makes money?" Jack Welch even said "I was afraid of it because I could not type". Many companies feared e-commerce would become a burden. By adding the click-element to business strategies, huge additional costs on web sites and technology would appear. Besides, the cost of fulfillment (picking, packing and delivery) would be a major killer. Many doubts prevented GE from joining the bandwagon of e-commerce. But this did not influence the development of e-commerce. In June 1998, Schwab's web site handled about 600,000 secure transactions a day. However, the site handled well over 7 million secure transactions a day in November 1999, just less than one and half a year later. Schwab conducted two-thirds of its trades over the Web taking in 4.7 million dollars a day. Gradually, Jack Welch realized what GE had missed. Jack Welch said "If we do not embrace it and make it as engrained as breathing – we may be taking our last breath", in January 1999. In addition, Jack Welch addressed his annual speech to shareholders in which he stated the importance of e-commerce again on April 26, 2000. In the speech, Jack Welch said, "the 'new economy' and 'old economy' are just popular terms. However there is only a global economy no matter at present or in the future. Any company, whether old or new, could be on its last breath, if it does not see the technology of e-commerce as important as breathing. But for those of us including GE, who can capture it, the rewards of e-commerce would be greater than we can imagine".

In this background, GE realized the importance of e-commerce and began to implement e-commerce. As we knew, GE was always committed to achieving the leadership. If the business was no longer No. 1 or No. 2 in its industry, the department would be rectified, sold, or closed. It made GE become the world's most powerful conglomerate company. To reach and maintain the leadership position, GE's ongoing growth and strategy was focused on four key initiatives: Workout, Globalization, Six Sigma and Services (Fig. 4.2). But in 1999, e-commerce was taken as one of the key initiatives.

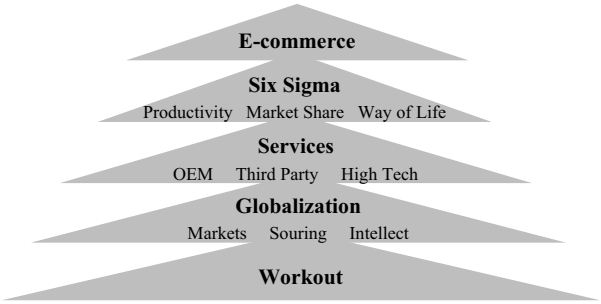

Fig. 4.2 Five initiatives of GE

- Workout

Workout was the oldest initiative at GE, which could go back to the early 1980's. It has become GE's operational way, deeply ingrained in GE's culture.

- Globalization

Globalization was taken as the key initiative in 1985. GE tried to find new markets for products and services and the most competitive sources of finished products, components, and raw materials by globalization.

- Services

What's more, GE aimed at transforming from an engineering company into a service firm and took "product services" as its key initiatives in 1995. In order to achieve the goal, GE was committed to creating service platforms to support high-tech products and equipment.

- Six Sigma

The "Six Sigma", referred to before, was used to eliminate the variability in the process and optimize the quality and taken as its key initiatives in 1996. In addition, GE used Six Sigma to help distinguish between work which was absolutely necessary to the quality. Through this methodology, GE has developed and delivered much-improved products and services. It is estimated that GE has trained more than 100,000 people in Six Sigma and completed 500,000 projects [21].

- E-commerce

E-commerce was taken as one of the key initiatives in 1999. Its goal was to utilize Internet-based workflows wherever possible to eliminate process friction and streamline the process of GE. GE had invested $10 billion in IT since 1998 to make digitization a vital part of the company. GE expected to make use of e-commerce in all aspects of the business — from the "make" side of internal process digitization, to the "buy" side of sourcing and procurement, and finally to the "sell" side of customer transactions and services.

In addition, workout, globalization, Six Sigma and product services were the foundation for the development of e-commerce. Only when all the four initiatives were shaping a leaner conglomerate, could e-commerce be well developed.

4.2.3 GE's E-Commerce Strategy

Through its e-commerce initiatives, GE expected major improvements in both the buy side and the sell side of the business. On the buy side, e-commerce strategy aimed at carrying out the whole negotiation process on the web and performing transactions electronically with GE's suppliers. The strategy also planned to achieve complete automation of the selling process, including customer services and order taking. We could just subdivide the goal into seven themes as follows [22]:

- Make it easy to do business with a unified face to the customer.
- Develop a process enterprise which was intenerated around the customer.
- Focus on outside-in services instead of just manufacturing products inside.
- Use flexible business process outsourcing to integrate virtually.
- Make the business agile which means to respond to uncertain economic events quickly.
- Make use of digital cockpits to monitor, act and control events.

However, how to convert these themes into business processes was critical in the practical implementation. In order to translate these strategic themes into processes and applications, strategic contents and guidelines in details were needed. The details of GE's e-commerce strategy had been stated in Welch's speech.

(1) Accepting the existence of e-commerce

Accepting the existence of e-commerce means to actively take actions to utilize e-commerce. There should no excuses such as channel conflict, immature market, and immature customer base to prevent the enterprise from developing e-commerce. E-commerce was the new thing at that time. Due to lack of enough experience, there must be some doubt about e-commerce itself and concrete implementation. But do not let these fears hinder the pace. GE should encourage employees and customers to actively adapt to the environment by training, educating and so on. Meanwhile, with the introduction of new e-commerce strategy, GE should balance interests of different sectors and persuade all of them to utilize e-commerce. For example, the sales force may feel threatened that after customers learnt how to use GE's websites to directly place orders, they might end up losing their jobs. So GE should encourage the sales force to accept the existence of e-commerce in some ways. For example, GE should offer a bonus to salespeople who helped customers use GE's website. In addition, members of the sales force were also educated as to how the Internet would benefit them as well as customers.

(2) Seizing the opportunity by making use of e-commerce technology

In the period when the market changes relatively slowly, the market opportunities may continue for a few of years. However, the opportunity seldom appears twice in the age of the Internet. The information could quickly spread to anyone, anywhere, at any time in a short time through the Internet. An opportunity a company lost may become the one that another company could make use of. Any company which did not seize the opportunity by making use of e-commerce technology may fall behind and face a survival crisis. So GE should well utilize

e-commerce to reduce the cost, integrate diverse businesses, and provide qualified services. Meanwhile, GE should undertake strategic investment in Internet companies making use of GE's advantages.

(3) Taking the advantage of the fast speed of the Internet

Introduce the principle of fast speed to accelerate the development of each business. In the age of the Internet, the opportunity was fleeting. If the company could not respond quickly, the opportunity may disappear. So the company should improve the management efficiency. Meanwhile, GE could take advantage of the fast speed of the Internet. Once e-commerce was carried out, the customer could get the service in a fast and efficient way anywhere and at any time. In addition, the company could immediately get the response from customers. With the fast response, GE could provide quality services and products to the customer, which further improved the development of GE.

(4) Establishing the KMPI to be compatible with e-commerce environment

On the buy side, online bidding and the balance between total online purchasing amount and the amount saved through e-commerce should be measured. On the product side, the delivery speed, information collection and so on should be taken into account. As far as the selling side, the visit record, online revenue, new customers, market share and so on should be measured too.

4.2.4 Implementation of GE's E-Commerce Strategy

GE was typically a fast follower in consideration of its falling behind at the beginning. In order to get the momentum of e-commerce, GE had to quickly muster support. Meanwhile, GE shifted the paradigm, from old economy comparisons such as Lockheed Aircraft, Maytag Washers, Sony Televisions and BASF Plastics to new economy comparisons such as Yahoo, Amazon and AOL. In addition, GE focused on practical applications such as industry-specific systems in order to provide better products and services. Meanwhile, GE planned to operate all the businesses through the Internet including selling, buying and designing products. GE's e-commerce platform was based on B2B architecture, which could be divided into three parts: a buyer's market – GE and vendor trading platform; the seller marketplace – GE and its customer trade market; and self-party platform – GE operational platform among departments. Meanwhile, GE also provided various e-commerce solutions to others according to its experiences. Under its e-commerce strategy, GE had also introduced a series of measures (Fig. 4.3) [23].

- e-Buy

The e-Buy was meant to purchase materials online. The e-Auctions allowed suppliers to prepare and submit online bids for request for proposals (RFQs). In the e-Auction, the time of the price negotiation cycle was significantly reduced and the supplier approval process was simplified by quickly eliminating non-competitive suppliers. Meanwhile, the RFQ process was standardized and streamlined which reduced a great amount of transaction cost. In 1999, the

e-Auctions saved about 20% transaction costs. In addition, the supplier could directly connect with the GE systems. Take GEPS as an example (Fig. 4.4). The supplier could connect the database servers through some portals such as Yahoo.com, GE.com and gepower.com. With secure access to GEPS Intranet via Internet, the suppliers could connect internal GEPS database servers and get the internal data. Moreover, GE provided a lot of applications such as on-line auctions, electronic invoicing, supplier scorecards, milestone tracking, e-Logistics, e-Marketplace and e-Packing list. Take the electronic invoicing as an example. Through electronic invoicing, suppliers could view invoice information and payment status online without waiting for mailing time to arrive at accounts payable. In addition, there would be less possibility of error because of no manual data entry at accounts payable. All these Internet operations replaced paper-based processes.

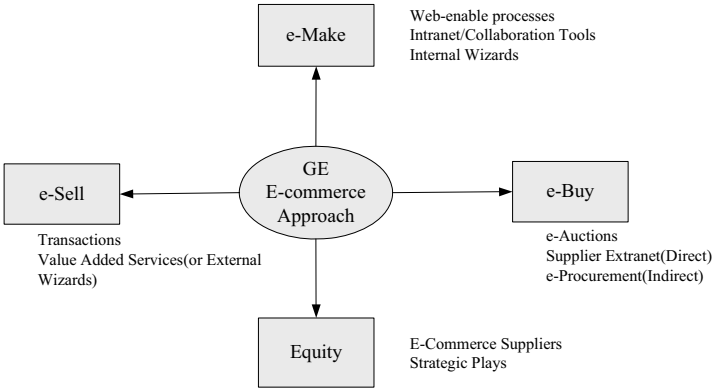

Fig. 4.3 GE e-commerce approach

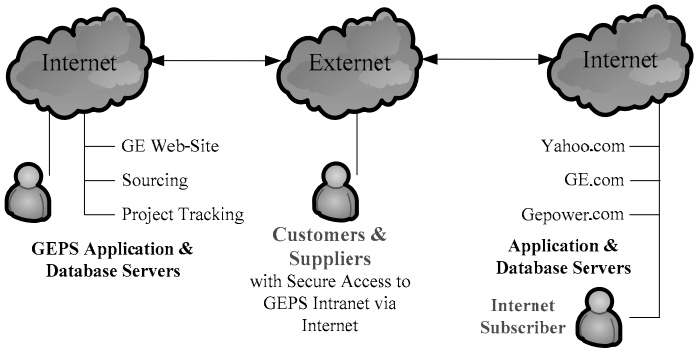

Fig. 4.4 Suppliers example of GEPS

- e-Sell

The e-Sell generated revenue for GE through three aspects: online transactions, adding value to what currently offers customers and forcing GE to change its behavior and become more competitive based on customer use of the Internet. The Internet became a critical source of real-time customer/GE interaction and relationship management. Through the Internet, GE built on its image of "provider-friendly, stable partner, 24*7". Customers could also get access to GE's internal database in a similar way to GEPS referred to above. Take GE Polymerland as an example. It served as an online sales& data portal with strong design, research and order status capabilities. People could buy things online and the portal could also provide the information to help customers find out the potential goods. In addition, GE could make use of the data to understand the customer demands, design the products and do the proper research. There were about $1 billion online sales in 1999 and $7 billion in 2000.

- e-Make

The e-Make was meant to eliminate manual activities to improve and simplify the workflow process. GE tried to create a paperless work environment. GE used the electronics devices to automate the manufacturing and collect the necessary information. The information and data could spread and be shared in the whole company through the Internet for analysis. The e-Make could provide better and faster information and reduce support resources. Above all, digitize everything. GE almost saved 40% to 50% of the cost of the manufacturing process during 2000.

- Equity

The equity included two aspects, e-commerce suppliers and strategic plays. GE tried to reach a strategic cooperation agreement with suppliers. Meanwhile GE made especially a lot of strategic equity investments in e-commerce, including relevant technologies.

It is seen that GE implemented its e-commerce strategy in all the aspects of the organization to eliminate paperwork and run operations a lot more efficiently. During the process, it's necessary to provide the employees with e-commerce training and help them adapt to the changes in the business environment. To successfully implement its e-business strategy, GE had to deal with some cultural issues too. It had to ensure smooth operations and build good relationships with customers. GE paid a lot of attention to cultivating the habit of shopping online.

4.2.5 Benefits to GE's E-Commerce Strategy

GE is not an IT enterprise but a representative of traditional enterprises. Different from IT enterprises, GE's e-commerce positioning is to improve production efficiency and reduce the cost in order to become the leader in the era of e-commerce. It mainly focuses on production, which is very suitable for GE. In the development of e-commerce in GE, Welch actively asked all business sectors

to work out a complete set of practical e-commerce strategies, implementing programs and work plans. Now all of GE's businesses can be available through the Internet.

The e-Buy trading platform means all of GE's suppliers can bid online, which greatly reduces the supplier's price and further reduces the costs of GE. Now GE online purchase value has reached more than $15 billion, including various types of office equipment and materials such as office furniture, fax machines, copiers, etc. In 2000, each GE transaction cost was about $50 – $100 and the transaction costs as a whole were about $200 million to $400 million. But each transaction cost online was just $5. If all the transactions were done online, GE could save almost $ 20 million.

As far as the e-Sell, consumers can shop online and order anything they want anywhere they have the Internet. All of GE's products can be found in GE's e-Sell trade platform. In the first year of implementing e-commerce, the sales online had reached nearly $1 billion, which increased to $7 billion in 2000. E-commerce reduced a great deal of the transaction cost, almost $1.6 billion. After putting the order services online, customers did not need to call GE any more. The inquiry cost online was only 20 cents per treatment while that of a consulting telephone call was up to $5. GE had to handle more than 2000 million telephone calls each year. By implementing e-commerce, it could reduce transaction costs by $96 million.

In addition, GE's overall organizational structure has been restructured and reorganized. With the implementation of e-commerce strategy, all of GE's business processes have been automated based on the Internet. All the business information such as manufacturing information can be quickly collected and shared in the whole company through the Internet. Moreover, GE has provided a series of e-commerce services such as Commercial Distribution Finance (CDF) and Customer Online Management System (COMS).

Now GE's aircraft engine department has achieved annual sales of over $10.6 billion by implementing e-commerce. Meanwhile, the department put the list of all kinds of components onto the Internet so that customers could inquire about the price and delivery situation of the product ordered anytime they wanted. In addition, the supplier could directly arrange the delivery time and deal with the orders on the Internet. Moreover GE's medical equipment department could provide for the cooling device application services online. For example, the salesmen could install the magnetic imager with the technical personnel on the user side through the Internet.

Above all, e-commerce brought fast development for GE. Its revenue in 2004 was $15.24 billion with more than $150 million profit. The expenditure on sales and administrative management was reduced by about 20%–50% by implementing e-commerce. The benefits of advanced productivity brought by e-commerce could not be accurately calculated, which was estimated at least $20 million. During the financial crisis, GE still earned about $30 billion and generated $36 billion of cash in 2009[24]. After experiencing the financial crisis, GE still earned $3.9 billion in the fourth quarter of 2010, up 33% from the fourth

quarter of 2009 [25].

Although GE was not the first enterprise to make use of e-commerce, it was one of the best enterprises to implement it. GE has become the paradigm of implementing e-commerce right now. Meanwhile, GE is committed to provide the e-commerce solutions, selling tens of thousands of e-commerce software applications. From the entire history of the development of GE, we can see that enterprises should pay attention to their own characteristics when formulating and implementing e-commerce strategy. Considering GE is a manufacturing enterprise in essence, GE positions its e-commerce strategy on improving the production efficiency, which is an important reason for GE's success.

Exhibit 0.1 Jack Welch's speech presented at the GE's 2000 annual meeting

"Reality in the Internet world means moving at a fanatical, maniacal pace everywhere in GE!"

Presented at the General Electric Company 2000 Annual Meeting, Richmond, Virginia, April 26, 2000

Once again I would like to welcome all of you to our Annual Meeting. Thanks for coming, and thanks in particular to our Richmond share owners for their gracious hospitality to our Board of Directors.

We've always been warmly received in the different GE cities we visit every year for this annual meeting, and one of the reasons is because of the things GE employees do in their hometowns all year round.

GE Financial Assurance, or GEFA as we call it, located here in Richmond and led by CEO Mike Fraizer, is the eleventh largest net income business in the Company. It is only five years old, yet in those five years GEFA employees; many of them new to GE, have warmly embraced the GE tradition of volunteerism in the community and have worked to improve life for people here in the city of Richmond.

In the schools, GE mentors from the Elfun Society, a company-wide organization of GE volunteers, working with a five-year $1 million grant from the GE Fund, are aiming to double the college-bound rate of the students at John F. Kennedy High School. I visited the high school yesterday and met with its students and principal Frank Butts, a great guy and an education zealot who is with us here today. This mentoring program at JFK is a best practice learned from Elfun chapters in several other GE cities. Nationally, this program has enabled more than 5,500 kids who probably would never have gone to college to do so.

The Richmond chapter of Elfun works with younger students as well. GE employees run a hands-on after-school science program with its partners at the Science Museum of Virginia. And 350 GE employees from Richmond took busses to North Carolina last summer to do volunteer work at the Special Olympics World Summer Games in North Carolina.

Again, nationally, Elfuns in every GE town do more of the same, and each year deliver more than a million hours in volunteer service. They certainly are one reason why, just two months ago, Fortune Magazine named GE "America's Most Admired Company" for the third year in a row.

A technology change, massive as it is, doesn't mean abandoning traditional management concepts. What it does mean is adapting those business principles to the transformational world of the Internet.

Every year 340,000 GE employees around the world send me to this meeting armed with terrific numbers, and this year is no exception. In 1999 GE

- Revenues were up 11% to $112 billion — a record.
- Earnings increased 15% and broke the $10 billion level for the first time.

The total return on a share of GE in 1999 was 54%. Over the past 5 years, this return has averaged 46%, more than 60% better than the S&P 500 for the same period.

In the first quarter of 2000, results from operations were even better: Revenues were up 24% and earnings were up 20%.

Finally, on numbers, this is my twentieth annual meeting and the fifth time I will ask for a stock split, this time three for one.

We employees have always considered a split a celebration, and we hope you do as well.

I closed the annual meeting last year in Cleveland by saying to our share owners: "The next time we gather again in April of 2000, as GE begins operations in its third century, you can be certain that your Company will never have been newer, fresher or more energized."

I had a lot of confidence then, but I didn't know that this would turn out to be a massive understatement. I didn't realize that in less than a year a phenomenon that was rumbling across the operations of our Company would erupt with a transformational energy that is changing the very kind of company GE is.

You have undoubtedly read about the ongoing debate about "new economy" companies versus "old economy" companies and the advantages, or penalties, for being one or the other.

The fact is the old economy – new economy scenarios are just trendy buzzwords. There is now and will be in the future only one global economy. Commerce hasn't changed.

There is, however, a new Internet technology that is fundamentally changing how business operates.

But a technology change, massive as it is, doesn't mean abandoning traditional management concepts. What it does mean is adapting those business principles to the transformational world of the Internet.

This morning I want to explain what adapting these traditional management principles means to all of us in GE.

Let's start with the decades-old GE principle of reality, seeing the world the way it is, not the way we hope it will be or wish it to be.

Seeing reality for GE in the '80s meant a hard look at a century-old portfolio of business, insisting that every business in GE be #1 or #2 in their global markets or that they must be fixed, sold or closed. Taking action on this #1 or #2 reality brought us to where we are today: the owners of the most exciting and powerful array of global businesses in the world.

Seeing reality today means accepting the fact that e-commerce is here. It's not coming. It's not the thing of the future. It's here. Reality today means "go on offense." One cannot be tentative about this. Excuses like channel conflict, or "marketing and sales aren't ready," or "the customers aren't prepared" cannot be allowed to divert or paralyze the offensive. Moving aggressively raises some thorny issues with no clear and immediate solutions, but the challenge is to resolve these issues on the fly in the context of the new Internet reality. Tentativeness in action can mean being cut out of markets, perhaps not by traditional competitors but by companies never heard of 24 months ago.

Reality in the Internet world means moving at a fanatical, maniacal pace everywhere in GE!

The second management concept that has guided us for the better part of two decades is a belief that an organization's ability to learn, to transfer that learning across its components, and to act on it quickly is its ultimate, sustainable competitive advantage. That belief drove us to create a boundaryless company by delayering and destroying organizational silos.

Selflessly sharing good ideas while endlessly searching for better ideas became a natural act. We purged NIH — not invented here — from our system, creating a company with an insatiable desire for information. All this was done the hard way, before the arrival of the Internet. Today, with the Internet, information is available everywhere to everyone, and a company that isn't searching for the best idea, isn't open to ideas from anywhere, will find itself left behind with its survival at stake.

Another management concept that served us very well over two decades was the belief that an organization that was not only comfortable with change but relished it – saw it always as opportunity, not as a threat – had a distinct advantage in a world where the pace of change was always accelerating.

We became such a Company, but we had the luxury of learning to become one when the pace of change was comparatively glacial and the windows of opportunity often hung wide open for years.

In the late 1970s and early 1980s, we experienced the Japanese inroads on many of our traditional businesses, realized that our future was no longer in many of them, and moved into businesses that were immune to this assault while we restructured the Company. We did this, but we had almost a decade to get it done.

When Europe experienced doldrums and dislocations in the early 1990s, we moved quickly to partner with European firms whose future we believed in. The best opportunities this time were around for only two or three years.

Then Asia in the late 1990s experienced again economic dislocation and again sudden opportunities to partner with great companies with great futures from Japan to Thailand. The very best of these opportunities were gone in a year.

You see the pattern.

Today, in the midst of this Internet revolution, the opportunities presented by change open and close on a weekly, even daily, basis, which brings us to another management tenet — speed.

Relishing change in itself is not enough if we aren't institutionally fast enough to capitalize on it. The need for speed and more speed has been driving this management team for two decades, for the competitive advantage it always brings and for the sheer excitement and fun it imparts to every aspect of business. Our endless assault on bureaucracy, hierarchy, layers, boundaries and every other manifestation of corporate nonsense has made us much faster than we ever thought a big company could be, but that qualifier — a "big company" — was always there. The most daring true boast we could make about GE's speed was that we had become "the fastest elephant at the dance." Today, with the digitization of every process, every operation, every customer touch of every GE business around the globe, we are in the process of taking this Company to levels of speed, agility and performance we could only dream of just a few years ago. There is no time for lengthy evaluations of Internet opportunities. We have to pounce — every day.

We have the hard part, hundreds of factories and warehouses, world-leading products and technology. We have a century-old brand identity and a reputation known and admired around the globe, all attributes that new e-commerce entrants are desperate to get.

And we have one other enormous advantage — Six Sigma Quality — the greatest fulfillment engine ever devised.

Six Sigma is a quality process methodology that more than 100,000 GE people have been trained in and have been working at with great success for five years. Six Sigma fits like a glove with e-commerce because it allows us to produce and deliver just what customers need when they want it. Six Sigma Quality defines the ultimate in customer fulfillment and satisfaction, just what e-commerce requires.

The final and most basic management tenet is measuring progress. GE has for years, like every other company and business school, measured revenues, net income, cash flow

and the like and will continue to do so.

In the Internet world, we measure new things, in some cases things we never even heard of a couple of years ago and we measure most of them daily. We group these measures in what we call buckets... 4 buckets: buy, make, sell and strategic.

On our "buy" side, we now measure the number of auctions on line, the percentage of the total buy on line and the dollars saved.

On the "make" portion, the Internet is all about getting information from its source to the user without intermediaries. The new measurement is how fast information gets from its origin to users and how much unproductive data gathering, expediting, tracking orders and the like can be eliminated. This tedious work in a typical big company is the last bastion — the Alamo — of functionalism and bureaucracy. Taking it out improves both productivity and employee morale.

On the "sell" side, the new measurements are number of visitors, sales on line, percentage of sales on line, new customers, share, span and the like.

Strategically, the breadth of our business portfolio exposes us to a very wide range of emerging companies, many of them Internet based. This intimate knowledge has enabled us to make successful strategic investments in over 250 companies.

We are convinced that if we get these new buy, make, sell and strategic measurements going in the right direction, the traditional sales, net and cash flow measurements will follow, as will our relative stock market performance.

In the end, all of this going on at GE is about using this transformational new technology to better serve customers and to be so good and so fast we become the global supplier of choice.

So, to conclude, I'd like to remind you once more that there is very little, if anything, new in management today and that this "new economy" and "old economy" which we hear about incessantly are just labels invented by pundits.

There is, however, something new and something very real that is changing the pace and scope of business as it has never been changed before. Any company — old or new — that does not see this technology as literally as important as breathing could be on its last breath.

But for those of us, including GE, who are capturing it, are energized by it and see it as the greatest opportunity in our history, the excitement is like nothing we've ever experienced and the rewards promise to be greater than we can imagine.

The Internet truly makes the old young and the slow fast, and what could be a better tonic than that?

This is a wonderful time to be part of GE. I've never been more confident that our most exciting days lie ahead.

Thanks for listening.

4.3 Googlism

Different from IBM and GE, Google is a totally Internet company. After its establishment by Larry Page and Sergey Brin in 1997, Google has been the world-renowned search engine. With fast and accurate search results, Google has occupied 80% of market share in the United States. Now Google can not only provide web searches but also offer many kinds of content searching such as pictures, news, videos and maps. In addition, Google has expanded its businesses

to Gmail, Android, Ads, chrome and so on. But all the businesses are related to Google's main business-search engineer. Google's e-commerce strategy also aims at taking advantages in search engineering to find more useful information for enterprises and consumers.

4.3.1 Google: A Rising Star in the Internet Age

Google is a multinational public cloud computing, Internet search and advertising technologies corporation, which hosts and develops a number of Internet-based services and products. Google was established in January 1996 when its founders, Larry Page and Sergey Brin carried out a research project as PhD students at Stanford University. They were committed to creating a new technology 'PageRank' to analyze the relationship between websites by determining a website's relevance with the number of pages.

Since its establishment, Google has had fast development. Google became the search engine of "Yahoo" instead of "Inktomi" in 2000. In September, 2000, Google became the search engine of Netease (China) too. Now Google has become the best search engine in the world. According to a marker search published by comScorce in November 2009, Google was the dominant search engine in the United States market, with a market share of 65.6%[26]. Google has indexed trillions of web pages, so that users can search for the information they desire through keywords. The quantity of queries reaches over 1.5 million every day and the user would on average login on Google 13 million times a month which makes Yahoo fall far behind. But these simple "searches" have huge business opportunities behind them. To connect the search engine with the advertisement can accurately deliver the product advertising to target consumers. When viewing the search result, people would accept some advertisement unconsciously. Therefore, selling search technology, keyword advertisements and bidding rank become the universal pattern of the search engine. According to Google's annual report in 2008, 99% of Google's revenue was derived from its advertising programs. In the 2006 fiscal year, Google reported $10.5 billion in total advertising revenues and only $112 million in licensing and other revenue [27].

Google is not a traditional IT enterprise but an Internet enterprise entirely dependent on the Internet. Google is almost considered as the pronoun of search engines. But in terms of business flow, Google is also the most successful and effective e-commerce company. According to Associated Press, Google had about 1.5 million advertisers in the United States in 2010. Meanwhile, its number of global employees had reached 21,805 in 2010 and the number will increase as the business expands[28]. The revenue in 2011 reached $37.9 billion with a year-to-year growth rate of 24%. Total advertising revenues in 2011 reached $36.5 billion, accounting for over 96% of the total revenue [29].

But these figures are not the sufficient conditions for Google's being a successful e-commerce enterprise. The key factor of Google's success is its

unceasing innovation in the business mode and fast developing technology. Although Google develops e-commerce successfully, there is no obvious e-commerce strategy for Google. We tried to analyze and summarize different aspects which would have an important reference value for Internet enterprises.

4.3.2 E-Commerce Strategy of Google

Google is a complete and thorough Internet corporation with no other business besides Internet business. Google realizes innovation in the profit pattern, behavior pattern and enterprise culture has a far-reaching impact on Internet users.

- The innovation in profit pattern

Google's revenue is almost all from its advertising programs. But its advertising is not as simple as what we see in the streets or on the TV. Google creates the pay-per-click (PPC) model with strong ability to organize and search information. Once the user clicks the webpage, the website owner would pay Google $0.05. But if the user does not click, the enterprise needs pay nothing. The advertising fee is so little that most enterprises can afford it, especially those medium-sized and small enterprises (SMEs). The pay-per-click model is very flexible and of low cost. Google has no customer-service representatives because any question can be solved by the online support system. In addition, the customer can set the search condition by himself to obtain the information he wants more quickly and conveniently. Meanwhile, the customer can alter the keyword or search condition at any time which is very flexible. Moreover, Google has implemented various innovations in advertising methods. In order to find the user interest and target advertisement more accurately, Google acquired the DoubleClick Company for its publishers and advertising agencies. Google also launched a series of products such as Google Analytics, Google AdWords and Google AdSense. Among these products, Google Analytics allows the website owner to track where and how people use their website and do in-depth research to make users get what they want easily. Google also allows third-party websites to embed its search engineer.

- The innovation in search pattern

In the past, people thought the more frequently a keyword appeared in a document, the more significant the document was. Instead, Larry Page and Sergey Brin, Google's founders, think that a document's search ranking should be determined by the frequency of the document appearing on other websites and the credibility of these websites. Whether a website is important or not should be evaluated by craft brothers, which is more objective.

- The innovation in the software and hardware

Why people favor Google is because of Google's fast speed. To realize the quick retrieval, an effective search algorithm is necessary. In addition, high performance computers are also essential. But if you think computers Google is using are the most advanced supercomputers in the world, you are wrong.

Google's search system is composed of tens of thousands of second-hand computers which are connected together to form the server. But its performance is three times better than the world's fastest supercomputers. Google processes over one billion search requests every day.

- The innovation of search functions

Google's keyword can be the phrase or the sentence which brings in more convenience for the search. But the sentence as the keyword should be within quotation marks. In addition, the "site" mark can limit the search result in a website or website channel. The "link" mark can limit the search result in the website linked with all the websites the users has given. The "inurl" mark can limit the search result which includes the first keyword. The "related" mark can search relative content besides the keyword. The "cache" mark can search the cache file in the Google server. And the "info" mark can show a series of search result including those of the "cache" ,"link" and "related" mark. Besides these, Google has designed other senior search functions.

Directory service: if you don't want to search the webpage, but still want to find some special website, you can just visit the classified catalogue whose URL is http://directory.google.com/directory.

Toolbar: Google provides the toolbar integrated in the browser to facilitate the users. People do not need to go to Google's homepage but can still search by entering the keyword in the toolbar.

USENET search: there is a great deal of valuable news in the USENET. Google can not search in the USENET but can support browsing and releasing the news through the USENET Web version.

Translation: Google can translate the search result if you are familiar with its language.

SafeSearch Filtering: Google provides the SafeSearch Filtering placed in the URL (http://www.google.com/preferences for the adults). People can filter out those contents only suitable for adults which can create a healthy Internet environment for children.

- The innovation of search contents

Google provides several types of search content. Besides simple text search, Google provides PDF document search and image search. People only need enter "inurl: pdf" and the keyword in the search box. As for the image search, people can just visit "images.google.com" and enter the keyword describing the image. Besides that Google provides all kinds of digital searching services. On December 11th, 2003, Google added several new features: people can enter UPS and FedEx, patent, airplane and FCC equipment ID/tracking number to track what they want [30]. Moreover, Google has been involved in a new field of search engine advertising called "Click to Call" service which is connecting the advertiser with potential customers through the telephone. The service mainly targets small enterprises. Because these enterprises have no self-owned website, they can not use Google's original online advertising services. So Google tries to connect advertisers of this kind with online users through voice call.

- The innovation of other products

In addition to its standard web search services, Google has released a number of online products. Google formally launched a free webmail service Gmail which could offer over 7400 MB of free storage with additional paid storage ranging from 20 GB to 16 TB on February 7, 2007. In addition, Google launched the Google Docs which allowed users to create and edit documents online while collaborating in real-time with other users by combining two separate products, Writely[1] and Google Spreadsheets together. The Google Docs along with other Google Apps was taken out of beta on July 6, 2009. In order to simplify the process of paying for online purchase, Google launched Google Checkout similar to eBay (owned by PayPal) on June 28, 2006. Google Checkout also offered fraud protection, as well as a unified page for tracking purchases and the status. Google's products also launched desktop products such as Google Desktop and Google Talk. Moreover, Google has acquired many companies for diversification of products. Google acquired Keyhole for its product called Earth Viewer which gave a 3-D view of the Earth and developed it into Google Earth.

- The cooperation with other organizations

Google has partnered with other organizations for everything from research to advertising besides the innovation itself. In 2005, Google partnered with NASA Ames Research Center on large-scale data management, nanotechnology, distributed computing, and the entrepreneurial space industry. Moreover Google cooperated with Sun Microsystems to share and develop search technology together. Google also partnered with AOL of Time Warner to enhance the video search services. In addition, Google announced cooperation with Harvard and Oxford at the end of 2004. Google planned to invest 200 million to digitize the library collections in ten years. But the plan was objected to by the Association of American Publishers and other European national libraries in fears of the infringement of book copyrights which forced Google to abandon the plan.

4.3.3 Technologies Behind Google's Great Results

The success of Google is mostly because of its continuous technology development. Google has innovated in technologies to provide users with fast and accurate search results. Considering mass data on the Internet, Google proposed the distributed cluster infrastructure. Google's fundamental technology framework is described in Fig. 4.5. On the left of the picture are fundamental technologies that enable Google to gather and process mass data. Google cluster is based on the three core technologies including Google File System, Bigtable and MapReduce. On the right of the picture are many applications supported by fundamental technologies, including Google's famous search algorithm—PageRank, Google's repository of data and other infrastructure.

[1] A kind of word processing software launched by Google

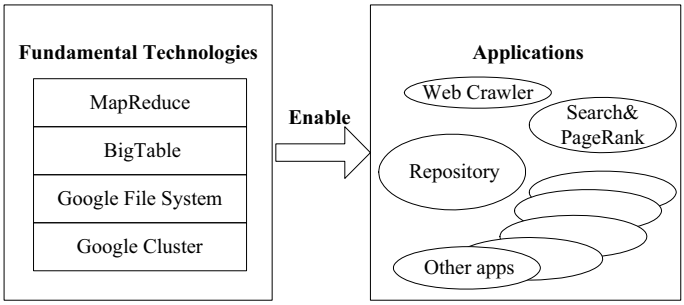

Fig. 4.5 Fundamental technologies of Google

- Google file system

Google File System (GFS) is a simple way of accessing enormous amounts of data spread across a large cluster of machines. Google File System acts as a virtual file system that makes the cluster look to developers more like a single machine, and eliminates the need for developers to think about details like what happens when a machine fails.

There are two kinds of nodes in Google File System: Master node and Chunk node. The Master node is used for storing the metadata relative to data files instead of a data block. The metadata contains the 64-bit tag mapping the data block's position. The metadata would be periodically updated according to the update of the Chunk node. The Chunk node is stored for the data block. The data file is split up into many 64 MB data blocks with sole 64-bit tags.

Fig. 4.6 presents the Google File System architecture. A GFS cluster is composed of a master server and several chunk servers. The GFS cluster can be accessed by several clients. When each block is created, the server would assign it to a constant and sole 64-bit chunk handle. The chunk server would store the chunk on a local hard disk as a Linux file. The data block can be read and written according to a specified chunk handle and byte range. In order to ensure the reliability, each block would be copied to multiple blocks on the server with three default back-up copies. The master server manages all the metadata including namespace, access control information, mapping information and block location. The clients interact with the master server for metadata manipulation while all the data communication is directly carried out by the chunk server. Through the joint design of the server and clients, Google File System is able to get the maximum performance.

- MapReduce

MapReduce is a powerful programming model for processing and generating very large data sets on large clusters. MapReduce enables developers to code and run simple but large parallel jobs in minutes.

MapReduce mainly processes mass data through the two steps called "map" and "reduce". The map is a highly parallel operation. It would carry out specified operation on each element in a logical list composed of independent elements and create multiple new lists to store the mapping result. When the map step is

completed, the system would shuffle and sort the new generated lists. Then the reduce operation would be carried out on these new lists, which means to merge elements in a list according to a typical key.

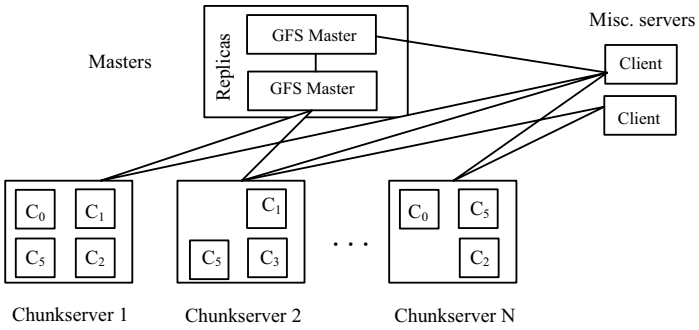

Fig. 4.6 Technical architecture of Google File System

Fig. 4.7 presents the operation mechanism of MapReduce. It can not only process large-scale data but also hide many tedious details including automatic parallelization, load balancing and downtime disposal. The MapReduce can be used in distributed sorting, log analysis, reverse index construction, document clustering and machine learning.

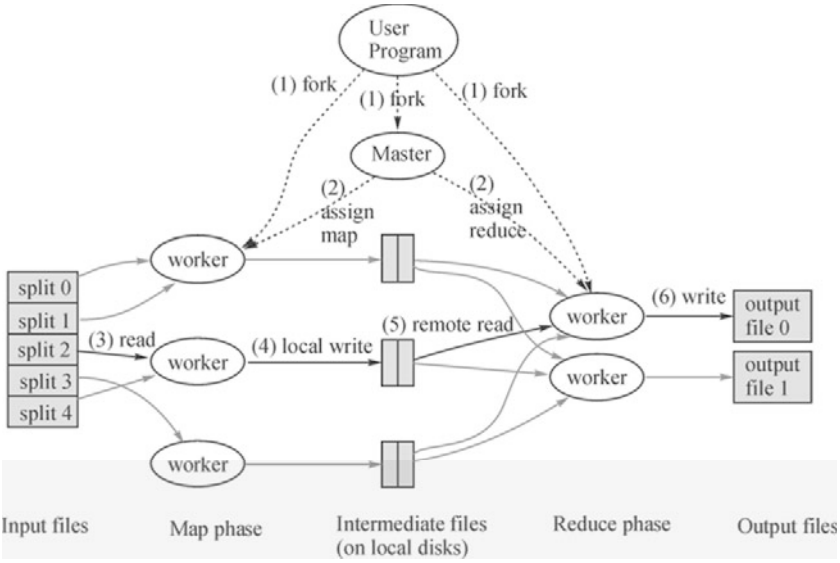

Fig. 4.7 Operating mechanism of MapReduce

- BigTable

BigTable is a simple database system that builds on the Google File System, allowing developers to ignore many of the underlying details of the cluster, and just concentrate on getting things done.

BigTable is not a relational database and it does not support join operation or any other advanced SQL operation. Instead, it is a multiple-level mapping data structure. BigTable can use structured files to store the data and process millions of reading and writing operations per second. What is a multiple-level mapping data structure? It is a sparse, three-dimensional and sorting cell. Every cell is composed of line keyword, column keyword and time stamp. The line keyword generally means reverse URL address such as com.cnn.www. The column stores detailed contents of the web page. Each content object has a time stamp.

BigTable can be divided into master node and tablet node (Fig. 4.8). The master node is used to process metadata-related operations for load balancing. The tablet node is used to store a sharding tablet to support corresponding data access. Now BigTable has provided structured data support for over 60 kinds of products including Google Print, Google Maps, Google Earth and Gmail. Now Google has operated over 500 BigTable clusters.

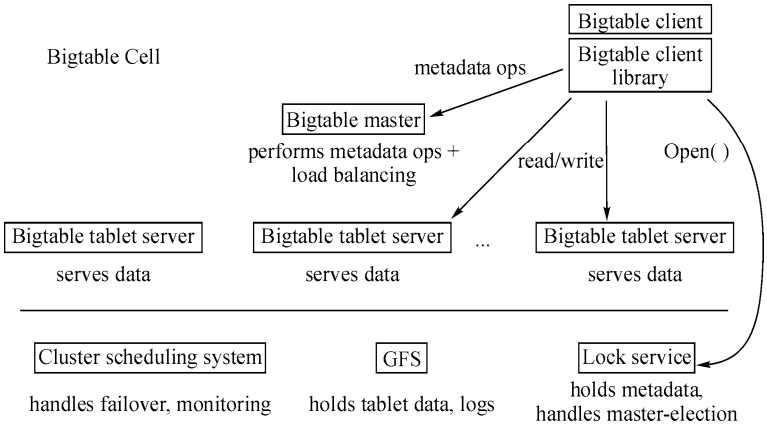

Fig. 4.8 Technology architecture of BigTable

- PageRank

PageRank was one key innovation when Google was just founded. Now Google is still closely associated with its PageRank algorithm. PageRank is a voting algorithm weighted for a Web page's importance by looking at what other pages link to it. Then another factor which voted for the importance of a Web page was added into the PageRank algorithm. This idea was the number of people who click on a Web page. The more clicks on a Web page, the more weight that Web page was given. Over time, still other factors have been added to the PageRank algorithm; for example, the frequency with which content on a page is changed.

In this algorithm, all the results are calculated by the actual situation without human interference, which makes people trust Google's search results more than

other search engines. In addition, the PageRank algorithm fully considers the association among different pages, which makes Google's search result more accurate.

4.3.4 Google's Achievements

Google's e-commerce strategy has an astonishing effect. Google runs over one million servers in data centers around the world and processes over one billion search requests and twenty petabytes of user-generated data every day [31].

Meanwhile its number of global employees has reached 21,805 in 2010 and the number will increase with expansion[28]. The revenue in 2011 reached $37.9 billion with a year-to-year growth rate of 24%. Total advertising revenues in 2011 reached $36.5 billion, accounting for over 96% of the total revenue.

In 2011, Google achieved revenue of $37.9 billion of which over 96% of the revenue is from advertisements. Now Google is the dominant search engine in the United States with over 80% market share. According to the AdGooroo, the market share of Google in the US and international market was the most from March 2009 to March 2010, about three times of that of Yahoo and eight times that of Bing (Fig. 4.9).

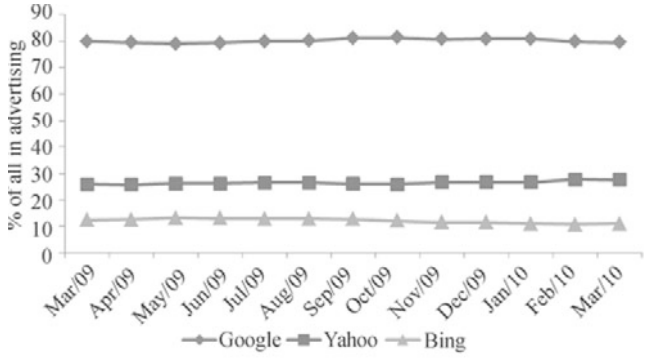

Fig. 4.9 Market share in advertising of search engines (US and International)

Meanwhile, Google's e-commerce is popular with the public. Since Google extended its customer satisfaction over Yahoo in 2007, Google has been always the top in the American Customer Satisfaction Index (ACSI) E-Business Report launched by the University of Michigan. The ACSI model measured how well an e-business performed against customers' expectations through categories including search engines, portal, online news and information sites. Google was at the top with a score of 86 in 2008 and 2009, up 10% from that in 2007. Thus it can be seen Google's e-commerce strategy has already obtained favorable results.

From Google's success, we can see that innovation is the source for enterprises' development. As long as the enterprise insists on innovation, it can

obtain fast development. Those enterprises without enough innovation would fall behind. Meanwhile, innovation will never stop. Before Google, people thought the development of the Internet was very mature and there would be no innovation anymore. But the rise of Google changed people's ideas and brought a new wave of Internet innovations. Each Google innovation is customer-oriented. For example, Google chooses simple websites in order to make customers pay more attention to useful information they are looking for. It can be seen that enterprises should focus on customer-oriented innovations when enterprises formulate and implement e-commerce strategy.

4.3.5 Effects on People's Daily Life

Google has huge effects on people's life. With the goal of organizing the world's information and making it universally accessible and useful, Google has innovated in the search engine many times. Now people can easily find what they want with the help of Google. In the world of the Internet, Google has been the god for a great number of people. In order to show their respect to Google, a new word "Googlism" has been created.

However, with Google's super capability for searching information, people began to worry about their privacy. The "Boston Global" has even described a story that an ordinary person named Eric broke up with his girlfriend because his girlfriend found his experience of being imprisoned for larceny eight years before through Google's search engine. Besides, there is a lot of private information on the Internet such as telephone numbers, email addresses, interests and education which can be searched through Google. Google's success has brought serious challenges to information security and privacy protection [32].

In addition, more and more people begin to worry about the fairness. The Google Watch, a website launched by the non-profit group Public Information Research has even criticized Google's PageRank algorithms, saying that they discriminate against new websites and favor existing sites, and has made allegations about connections between Google and NASA and the CIA [33]. Even some company has sued Google for its drop in Google's search results.

Now that Google has so much information, how about Google's self-control? Google stores lots of search information and puts cookies on users' computers so that Google can track those search results to individuals. In addition, Gmail, launched by Google, has brought a lot of privacy criticism. Google can automatically scan e-mails and add context-sensitive advertisements to them. Until now, Google has not confirmed how long such information would be kept and how it would be used. There are several cases where Google has even "accidentally" downloaded personal information.

Google also brings a huge potential threat to web service providers. Because Google can provide the most popular search result, it is becoming a web service middleman. For example, people used to search the goods they wanted on the

eBay website before. But now people only need to enter “eBay” and the name of the goods they want in the search box, Google can lead users to the corresponding link. Gradually Google becomes the middleman of eBay.

Above all, Google has changed the way people use the Internet which not only makes the search simple and convenient but also brings in a lot of potential threats.

4.4 Haier’s Legend

Haier is one of the most successful companies in China with main businesses in the household appliances field. In order to obtain competitiveness, Haier is committed to innovation and reform. When most enterprises in China cut prices to earn profits in the early 21st century, Haier was devoted to improving product quality and expanded businesses abroad. When e-commerce came out in developed countries, Haier found potential opportunities in e-commerce although there were still barriers of poor technical infrastructure, payment systems and consumer acceptance. When developing e-commerce, Haier not only invested in the network construction but also focused on establishing its own logistics system and optimizing internal business flow.

4.4.1 Introduction of Haier

Restructured in 1985 as a small manufacture of refrigerators burdened by a debt of RMB 1.47 million, Haier has survived a series of radical reforms and become one of the most successful companies in China. Now Haier is primarily a producer of household appliances, including not only refrigerators as before but also air conditioners, washing machines and so on. Besides the domestic market, Haier moved into the international market as well. Haier has its own plants in many countries such as Indonesia, Philippines, Malaysia, the United States, Pakistan, Jordan, Egypt, South Africa and so on. There are about 30,000 employees in the world. Haier has maintained a healthy and fast growth since 1985. The products has developed from the single refrigerator to home appliances with over 15100 different specifications in 96 categories, including white goods, home appliances in black, beige and so on. The products are sold in more than 160 countries and regions. In 2009 Haier reached a revenue of 33 billion RMB, up 8.46% year-on-year while the net profit reached 1.74 billion RMB, up 49.64% year-on-year [34]. Several cases of Haier’s development have become classic cases at Harvard Business School and the International Institute for Management Development (IMD). Now Haier has been awarded the First Brand in Global White Appliances Markets issued by Euromonitor [35].

Haier’s fast development mostly relies on its innovative culture. Haier’s

branding process combines the best eastern and western management thinking to create a foundation for further innovation. Its innovation culture can be divided into five parts: concept innovation, strategic innovation, organization innovation, technological innovation and market innovation.

Concept innovation: Concept innovation is the prerequisite of all innovations. Sometimes though the fact itself doesn't change, a series of innovations will happen once the concept has changed. For example, one person went to India finding that there were no people wearing shoes, so he thought there would not be any market for shoes. On the other side, another person went to the same place, thinking India was a huge potential market because no one there had a pair of shoes. Concept innovation can bring in innovation in the market, technology and so on. Therefore Haier places concept innovation as a source of fundamental innovation.

Strategy innovation: Haier put forward different strategies in different stages: from brand building strategy to diversification strategy, then from globalization strategy to global brand building strategy. These strategies all pointed out the direction of Haier's development.

Technology innovation: Haier has gone through three stages of technology innovation. In the 1980s, Haier mainly did the OEM production through introducing foreign advanced technology. In the second stage, Haier mainly absorbed foreign advanced technology and improved it to establish its own brand with high added value. In the third stage, Haier completely mastered the core technology and carried on the self-innovation constantly. Now Haier has obtained about ten thousands patents, being the top in Chinese enterprises.

Organization innovation: Organization innovation means changes in the organization structure to adapt to the market change. Haier advocated organization innovation from a straight-line functional structure to matrix structure. Now Haier adopts the re-moulding of the market chain, which can fill the enterprise with vitality. This organizational structure can internalize the external market competition, transferring the internal employee relationship into a market relationship and delivering the external market pressure into internal pressure which makes every employee take the initiative to face the market and take actions as soon as possible so that the customer satisfaction degree will be improved.

4.4.2 Haier's Development Phases

The development of Haier can be divided into four phases [36] as shown in Fig. 4.10.

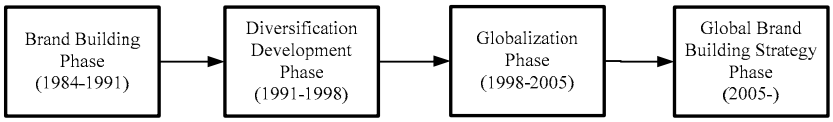

Fig. 4.10 Development phases of Haier

- Brand building phase

Haier launched the brand building strategy in early days of China's reform and opening up. At that time, the market was relatively controlled in China. People could buy a refrigerator only when they had a 'refrigerator coupon'. The demand in the market was not enough so that the demand was unrelated to product competitiveness. But Haier still insist in providing high quality to tap an enormous potential market. Therefore Haier launched the 'Zero Defect' quality standard. In 1998, Haier earned the first ever National Gold Medal awarded in China's refrigerator industry. Because of the high quality of Haier's products, Haier survived in the market reform. When most refrigerators cut prices because refrigerators' supply exceeded demand by the late 1980, Haier could still increase its prices by 12%. Through the implementation of the brand building strategy, Haier had transformed from being a small factory operating at an annual loss of nearly 1.47 million RMB into the number one refrigerator brand in China.

(1) Diversification development phase

Haier launched the diversification strategy by the early 1990s. At that time, many home appliance manufacturers chose to reduce the price due to fierce competition. But Haier still remained its market position with a stable price because of its good quality, which gave Haier opportunities to carefully think about future development. Haier observed that future marketing competitiveness would be more likely to come from satisfying customers' demands instead of beating annual sales quotas. Therefore Haier established its diversification strategy to expand its product line. At that time, Haier developed new products including washing machines, air conditioners, and other items. Meanwhile, Haier put emphasis on customer services, which further strengthened customer loyalty to the Haier brand. Through the implement of its diversification strategy, Haier had transferred from a single-product company to a manufacturer with multiple product lines.

(2) Globalization phase

In the 21st century, many Chinese companies acted as original equipment manufacturers (OEMs) that produced products for multinational corporations. But as the labor cost gradually increased, many multinational corporations shifted their production facilities to other countries with cheaper labor costs. In this situation, Haier realized that Haier had to earn their own proprietary intellectual property and strong brand identities to obtain market competitiveness in the age of globalization. Therefore Haier began to enter the international market and utilize main sales channels to deepen market penetration. Haier established a design/production/marketing operational framework in six key regional markets including North America, Europe, Middle East/Africa, Asia-Pacific, ASEAN and South

Asia.

(3) Global brand building phase

After Haier expanded its business to foreign markets, Haier began to build global brand identity. In the global brand building phase, Haier set a target of building a local Haier brand in each geographic area all around the world. Now Haier has established design centers, manufacturing bases, and trading companies in over 30 countries for sharing global resources through a single information platform.

4.4.3 Contents of Haier's E-Commerce Strategy

Haier has laid a solid foundation for e-commerce with the implementation of Enterprise Resource Planning (ERP) and Business Process Re-engineering (BPR). The ERP is to build the technical infrastructure for information collecting and processing so that all parties can share all the business information. The BPR is to readjust the traditional business processes in order to meet the requirements of e-commerce. After the two critical programs, Haier has been ready for e-commerce. First, Haier achieved e-Management, e-Marketing, e-Service, e-Purchasing, e-Production and e-Distribution, which all made a solid foundation for Haier's e-commerce practice together with Haier's traditional distribution channels. As for the organization and managerial process, Haier shifted from a traditional function structure to a flat market-chain structure. Every employee is responsible to the market instead of only to their bosses, which is called the famous Haier's Market Chain Management [37]. According to Market Chain Management, Haier set the customer and the market as the focus of the company instead of profit in the past.

Haier's e-commerce strategy consists of its awareness, target and measures of e-commerce.

(1) E-commerce awareness

E-commerce is the product of high economic maturity. Developing e-commerce is the inevitable choice and objective requirement for Haier. Haier's leadership is fully aware of the imperatives of e-commerce in the new economy. Mr. Zhang Ruimin, CEO of Haier, has even pointed out that Haier's growth depends on effective e-commerce strategy. In addition, responsiveness is the core of e-commerce practice. So Haier should respond quickly to the dynamic changes in the global market and be committed to the development of e-commerce.

(2) E-commerce target

The primary strategic target for Haier's e-commerce is better customer service to meet the vision of a global brand. Haier pays much less attention to profit growth and profit margin than to better services. Haier hopes restructuring the traditional business through e-commerce would gain competitive advantages.

(3) E-commerce measures

In order to achieve its e-commerce target, Haier has implemented a lot of

measures as follows:

● Carrying out the existing business online to achieve individual service

First, Haier realized its traditional B2C business by selling products online to achieve its goal of electronic operation of traditional business. Then Haier integrated electronic businesses in different periods into a most reasonable enterprise e-commerce system. At last its e-commerce strategy could coordinate with the development of the company's overall strategy. Now Haier can provide individual service online to better meet the customer demand. For example, Mr. Xu is an artist in Qingdao who wants to buy a refrigerator looking like a work of art but still practical. Mr. Xu finds the custom module online and designs a refrigerator by himself. Then he quickly receives Haier's feedback in which Haier promises to deliver the goods within one week. Without e-commerce, such services would not be possible. Meanwhile, Haier has claimed that it would shift from a manufacturing-oriented enterprise to a service-oriented enterprise.

● Setting up the e-commerce unit and developing e-commerce software

Haier established an e-commerce unit, Haier E-Commerce Co., with a staff of 45 as early as 2001. The e-commerce unit is responsible for e-commerce plans and initiatives within the company. Now the unit is developing the B2B business for the suppliers and B2C business to meet individual demand. On Haier's e-commerce platform, Haier, suppliers and consumers can realize interactive communication to increase added value.

● Establishing a self-owned, well-developed logistics system

Why Haier wants to establish its own logistics system is because of two reasons. One is that the successful implementation of e-commerce must depend on a well-developed modern logistics system. But there is no standardized and developed modern logistics system and no good logistics company in China. However, to complete an order it must pass through a series of processes such as the procurement, transportation, storage, manufacturing and distribution. If Haier chooses a local logistics company to do this, it is impossible for Haier to respond to the market in time and develop individual services. Therefore Haier has to establish a well-developed logistics system of its own. In China, Haier has more than 30 call centers in major cities and more than 10 thousand distributors who reach more than 60 thousand rural areas.

● Establishing a virtual trading platform and improving customer relationship management

The eHaier.com and iHaier.com are the main parts of Haier's trading platform. Between them, eHaier.com (Fig. 4.11) is mainly responsible for taking online orders, serving as the B2C platform. Instead of taking eHaier.com as the simple platform to introduce the company, Haier establishes the interactive relationship with customers on the Internet. For this, Haier has built one of the best distributions in China referred to above. Moreover, Haier's B2C platform is able to process customized orders. In order to set up a close partner relationship with suppliers, Haier set up an international supply chain, the iHaier.com, which is fully open. It can be seen iHaier.com is a B2B platform. The B2B platform can provide a lot of services such as ordering, automated stock replenishment, payment

processing and production-related control and processes. With the platform, Haier can find the best suppliers quickly, keep a close partner relationship with the suppliers and reduce the purchasing cost while improving product quality.

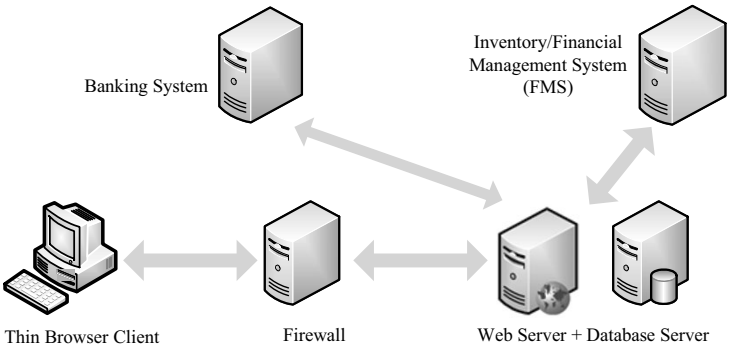

Fig. 4.11 Site configuration of eHaier.com

With the two websites, Haier has formed a preliminary e-commerce framework: one for order-oriented upstream manufacturers; the other for design-oriented downstream distributors and end customers. But "E of Haier" is more than this. Haier has to integrate organically different parts of e-commerce together, in which the internal management is the foundation of Haier's e-commerce platform. For this, Haier has improved an internal ERP as discussed before. In addition, Haier works with many IT partners such as SAP and Lucent, and some consulting firms such as McKinsey for technical and business advice.

4.4.4 Effects of Haier's E-Commerce Strategy

The overall effect of Haier's e-commerce strategy was generally positive. Haier had improved the mode of the new economy from two aspects, one for B2B, the other for B2C. In regard to B2B business, Haier promoted the external supply chain to replace some part of its own manufacturing operations. The distributor had been cut for B2C business, Haier's e-commerce promoted the interaction between the enterprise and the consumers which overall enhanced Haier's brand value. Through E-business, Haier's cycle time was largely reduced due to zero distance and fast speed. For example, the cycle time for developing new products was reduced from 4 – 6 months in 2000 to 2 – 3 months in 2002. The export delivery cycle time was reduced from more than 15 days in 2000 to less than seven days in 2002. Further, the procurement cycle was reduced from 10 days in 2000 to three days in 2002 [38].

In addition, Haier enhanced its customization. The consumer could design its own product with the help of Haier. Through e-commerce, Haier achieved zero

distance with the customer. In addition, Haier cultivated a lot of its own product designers. Currently there are 9,200 kinds of basic products including refrigerators, air-conditioners and washing machines. These basic products are similar to over 9,200 kinds of materials which form the basic functional modules along with thousands of accessories. Then consumers and distributors can freely choose the materials and functional modules on the platform that Haier provides to design their own products according to their own demand.

Moreover, Haier has formed a powerful logistics company, which not only provides modern logistics but also provides the perfect third-party logistics services for other enterprises.

Above all, through the implementation of e-commerce strategy, Haier has transferred its target from maximum profit to being customer-centered and market-focused. Further, Haier depends on increasing the B2B turnover and improving the innovation of B2C to raise the profit instead of increasing the service fee, which enhances Haier's competitive advantage. Moreover, Haier largely reduces the cost and improves the competitiveness of its products by purchasing directly from large international companies.

4.5 Taobao: The Largest Online Trading Platform in Asia

The improvement and the development of internet technologies have triggered rapid development of e-commerce applications since the beginning of the 21st century. Many enterprises are using e-commerce to work with partners and suppliers for procurement and other internal activities including automated office and product development. In general, e-commerce can be divided into Business-to-Business (B2B) and Business-to-Consumer (B2C). Besides, there is also another type of e-commerce called Consumer-to-Consumer (C2C). Taobao is the largest C2C platform in China. Taobao provides an open C2C platform so that anybody can buy and sell the goods on it. Since establishment in 2005, Taobao has defeated eBay and occupied over 80% of C2C market share in China.

4.5.1 What is Taobao?

Taobao, established by Alibaba Group in May 2005, is the largest online shopping and auction destination in China. It is committed to become the world's leading online retailer. It develops business-to-consumer (B2C) and consumer-to-consumer (C2C) business by providing a platform for businesses and individuals to open online retail stores which focuses on consumers across Greater China. Taobao processed transactions worth 20.83 billion RMB during 2009 and the transaction increased to 40 billion RMB in 2010 [39].

The term of 'Taobao' literally means "to search for the treasure" in Chinese.

Taobao advocates a faithful, dynamic and fast online trading culture. It is devoted to creating a more efficient and safer online retail platform. Meanwhile, Taobao is committed to creating a friendly trading environment. Everyone trading in Taobao can also make a lot of friends while achieving efficient and fast transactions. Now Taobao has a priority of doing pioneering work on the Internet and making friends for most Internet users. With fast penetration of the Internet in China, Taobao has achieved high growth in terms of quantity and trading volume even during the 2008 financial crisis.

Besides providing an online shopping platform, Taobao also provides a lot of tools such as an instant messenger tool called Aliwangwang. With Aliwangwang, people can instantly discuss transactions in detail with each other. Meanwhile consumers can rate and recommend vendors. People can also participate in a community called Taojiaohu in which they discuss favorite stores, goods, gossip and so on. Also, there are many other tools which will be discussed in detail below.

4.5.2 Background of Taobao's Establishment and Development

Taobao has developed very well since its establishment in 2003. It grew beyond eBay in 2005 and became the first Asian shopping website in 2006. It can be said that Taobao's establishment and development is a legendary arena.

In development of Taobao, Taobao's parent company-Alibaba plays an important role. Alibaba was founded in 1999 by Jack Ma and developed in the business-to-business (B2B) pattern. Jack Ma was the key person in the establishment and development of Alibaba. Almost every important decision of Alibaba was related to this legendary figure. When the Internet became more and more popular in 1999, Mr. Ma sensitively found an opportunity in e-commerce and determined to establish an online business information exchange platform for global businessmen. His crazy thought was appreciated by a lot of venture capitalists. The investor AB, Goldman, Fidelity Capital and Technology Development Fund of Singapore invested $5 million in Alibaba in September, 1999. With fast development, Alibaba began to earn profits from 2002.

With the success of Alibaba, Mr. Ma began to think about the opportunities and challenges the model of eBay would bring. In 2002, eBay announced investing $30 million to acquire a 33% interest in EachNet and the two companies formed a strategic partnership to further expand online trade in China. Through the alliance, EachNet would further extend its e-commerce leadership in China while eBay would enter the Chinese market, one of the world's fastest growing Internet markets. In 2003, eBay announced acquisition of the remaining 67% of EachNet's stock. Faced with such a strong competitor, Mr. Ma began to develop a consumer-to-consumer (C2C) pattern since he obtained an investment of $82 million from the Softbank. On May 10th, 2003, Taobao was officially launched.

It can be seen that the establishment and development of Taobao is related to

e-commerce. Taobao is committed to developing e-commerce in China, particularly in C2C and B2C businesses.

4.5.3 Taobao's E-Commerce Strategy

Taobao's success has been used as a model for developing e-commerce in China. Compared with other C2C websites, Taobao pays more attention to Chinese people's shopping habits and promotes service innovation based on Chinese characteristics. So what is Taobao's e-commerce strategy?

- No-fee strategy

In order to create the brand, Taobao decided not to charge any transaction fees and listing fees in the first three years. It believed that customers would be loyal only when they could get more benefits from online transactions than from other websites. The no-fee pricing strategy gave Taobao great advantages when it competed with its biggest competitor—eBay. Compared with Taobao, eBay charged many kinds of fees such as 'insertion fees', 'final value fees' and 'gallery feature fees' for listing. Although some kinds of fees were cancelled or lowered after 2008, they still could not compete with Taobao's no-fee strategy. Due to Taobao's no-fee strategy, there were 10 million listings on Taobao in September of 2005 while there were only 1 million listings on eBay China.

- Market positioning strategy

One of the most important factors in Taobao's success is Taobao's precise market positioning. Before its formal operation, Taobao analyzed China's C2C market thorough market investigation. At the end, Taobao decided to target the market on those Chinese customers between 20 and 30 years old with good education. It believed that those customers would be mainstream consumers in the future. In Chinese consumption custom, people preferred shopping in real stores. In addition, Chinese people were not all familiar with online consumption at that time. It was necessary to cultivate online consumption custom. Compared with those old consumers, younger consumers were more sensitive to trend changes and more likely to change their shopping habits. When those younger consumers grew up, they would influence the consumption habits of the whole country. Though Taobao and its competitor eBay both focused on young people, Taobao's target market was much more correct. Taobao was positioned on customers between 20 and 30 years old with good education including students and relatively low-income white-collars workers while eBay only targets professionals with salaries. Compared with professionals with long working experience, students and low-income people had more reasons to shop online because of the low cost of online transactions. In addition, those customers would become loyal customers of Taobao when they grew into the main stream of society. It can be seen Taobao's target market is much broader and more accurate. In fact, students are one of the most important participants, accounting for a quarter of all customers and 10% of online purchases.

- Promoting e-commerce instruments of payment

Chinese people always think online shopping is not as safe as traditional shopping because they cannot see the real goods and they cannot touch or try them anyway. Customers are usually afraid that they will be deceived by sellers when they conduct online transactions. So even if customers are attracted by online commodities, they will also hesitate to take a move. Customers prefer to pay when they receive the goods while sellers prefer to deliver goods when they receive the remittance. In order to solve the contradiction, Taobao launched an intermediary called Alipay to fulfill online transactions. In order to promote the development of Alipay, Taobao cooperated with Industrial and Commercial Bank of China (ICBC), Agriculture Bank of China (ABC), China Construction Bank (CCB) and many other domestic financial institutions. With Alipay, the buyer firstly transfers the money from a bank account into his Alipay account and then the seller can get the money from his Alipay account only when the buyer receive the goods and notifies Taobao about the receipt of the goods. Then the seller can transfer the money from his Alipay account into his bank account. If the buyer doesn't receive the goods or is not satisfied with the goods, he can request Taobao not to pay the seller and keep his money in his Alipay account. In addition, the buyer can comment on the goods received and the seller so that other buyers can get more useful suggestions when selecting the seller and the goods. If the buyer gives the seller an evaluation of "difference is judged", it will have a great impact on the seller's sales because other buyers will be skeptical of the goods' quality and service. Meanwhile, if the seller does send out the exact goods but the buyer is unfaithful, the seller has the right to complain the buyer to Taobao with proper evidence. With sufficient evidence, the seller can request Taobao to pay for the goods he has sent out. In addition, the seller can comment on the buyer's honesty. If the buyer has a low honesty score, many sellers will like not to deal with him. With this mechanism, the requirements of both sides will be satisfied and it is beneficial to create an honest environment for online transactions.

- Providing an online instant message tool for communication and convenience

In traditional shopping, people would like to bargain till both sides agree on a satisfied price. But during online shopping people cannot meet each other, it is impossible to bargain face to face. In order to solve the problem, Taobao developed an online instant message tool called Aliwangwang to help immediate communication between sellers and buyers. Aliwangwang, which meant 'prosperity' in Chinese is similar to MSN [40]. The buyer could communicate with the seller on a one-to-one basis through Aliwangwang just by clicking the Aliwangwang icon of a seller on the website if both sides are online. The buyer could ask anything about characteristics of the goods or the service through Aliwangwang while the seller could find out more information to provide better services to the buyer. If both sides have a different opinion on the price or the goods, they could also coordinate with each other by communicating through Aliwangwang. In addition, all the chat logs of Aliwangwang would be regarded as the evidence in case there was a transaction dispute. For example, if the seller

ensures the goods he would send are green in the chat logs but the goods the buyer actually receives are red, the buyer has the right to request the seller to resend the goods or give a refund. With this mechanism, Aliwangwang makes virtual trading real. In addition, Aliwangwang provides video and screen capture functions and mobile phone integration, which is much more convenient.

- Establishing a credit evaluation system to ensure online shopping's reliability

Credit evaluation is most important when shopping online. People may find it difficult to choose a proper seller online when facing lots of similar sellers. Although the price could be the primary criteria for people to select a seller, other characteristics such as the quality, after-sale service and timeliness are also very important. But these characteristics are not easy to distinguish because faking in a virtual environment is so easy but it is hard to find the faker with no real shops. Therefore Taobao has offered a credit evaluation system which is divided into two subsystems: appraisal for a buyer and appraisal for a seller. The appraisal is based on the past transaction history. As referred above, the seller and buyer should evaluate the other side after the transaction and the appraisal is not altered unless the other side agrees too. For example, if a deal is successfully completed, the buyer should give the seller a GOOD appraisal while the seller should give the buyer a GOOD appraisal. But both sides may give the other a BAD appraisal if the transaction fails. If the goods the buyer receives does not meet the quality assurance or his requirement, the buyer could comment on the buyer and give him a BAD appraisal. Even the buyer could ask the seller for return of goods. From these comments, both the buyer and the seller could make the first judgment about the other side. Taobao's credit rating is composed of three levels: flower, diamond and crown. Each level is divided into five sublevels. Among them, a one-flower rating is the lowest while five crowns is the highest. When the seller or the buyer gets enough GOOD appraisals, he would be prompted to a higher credit rating. In addition, Taobao allows buyers and sellers to track the rating in detail. The buyer and the seller could check the number of GOOD appraisals and reasons why GOOD appraisal is given so as to make a decision whether it is good or not.

- Strengthening the cooperation with other enterprises

Since its establishment in 2003, Taobao has aligned with many enterprises. As for the Internet portal, Taobao cooperated with 21CN and launched a big shopping site to give consumers more services over the channel, E-mail, messaging and market activities together in April, 2004. In 2005, Taobao cooperated with Sohu as strategic partners to share active user groups and to promote the progress of e-commerce in China [41]. Besides the Internet portal, the relationship with the banks is also very important. Online payment is one of the necessary parts in online transactions. But online payment could not be successfully fulfilled without support from banks. Therefore Taobao is committed to developing and keeping a stable strategic partnership with banks. During the establishment of Taobao, Taobao has obtained support from the Industrial and Commercial Bank of China (ICBC), Agriculture Bank of China (ABC), China Construction Bank (CCB) and many other domestic financial institutions. As a

third-party online payment platform, keeping a stable partnership with banks is necessary in the business process of Alipay. In general, banks charge customers remittance fees when transferring funds from one account to another. So Taobao has aligned with banks to reduce the remittance fee. Besides, Taobao has cooperated with other Internet companies. For example, Taobao signed a strategic agreement with Baidu, the biggest search engine in China. In addition, Taobao put lots of promotion information in other Internet portals to attract widespread attention.

Above all, we could summarize the business model of Taobao in Fig. 4.12. With the business model and e-commerce strategy, Taobao has developed well since its establishment. However, Mr. Jack Ma, CEO of Taobao, thought it was not enough for many rivals who were eager to take market share away from Taobao. In October 2008, Taobao announced a five-year 'Big Taobao' strategy with an investment of 5 billion RMB ($731 million) at the aim of developing Taobao.com into the core of an e-commerce ecosystem that could influence the entire economic chain of e-commerce companies while maintaining its business model. Meanwhile Taobao planned to pay more attention to offer more services to existing users rather than acquire more new users. Taobao wanted to transfer itself from an online shopping platform to an e-commerce infrastructure platform. With the help of Taobao's e-commerce solution, medium-sized and small enterprises could establish e-commerce platforms of their own and enter the e-commerce field with low cost and high efficiency.

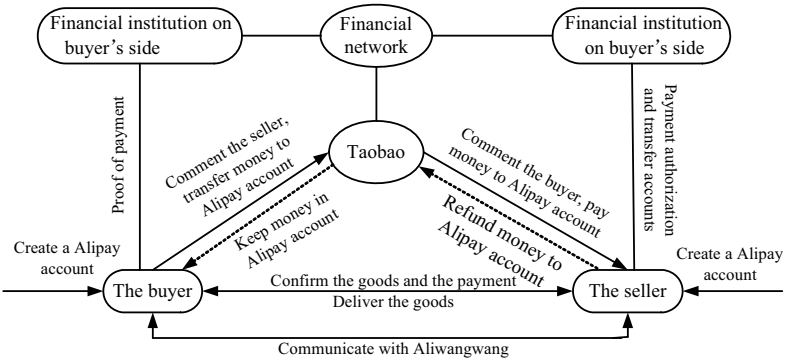

Fig. 4.12 The business model of Taobao

Therefore the 'Big Taobao' strategy has integrated most services owned by Alibaba[1]. At first, Taobao formed a B2B2C commercial chain by integrating Taobao and Alibaba with the aim of attracting e-commerce outsourcing providers to provide customers and SMEs with individual products and services. In September, 2008, Taobao integrated Taobao.com and its online advertisements marketplace Alimama together aiming at building up the largest e-commerce platform around the world. Through the integration, Alimama would provide

[1] Alibaba is the parent company of Taobao.

Taobao sellers with the most accurate, simplest and most efficient online marketing services. In addition, Alibaba strengthened the leadership of Alipay for improving China's online trusted secure system in order to coordinate with 'Big Taobao' strategy. Moreover, Taobao launched a B2C ecosystem named Taobao Mall to elevate online shopping infrastructure. According to Daniel Zhang, CFO of Taobao, Taobao Mall aimed at setting up the standard of online retail experience for Chinese consumers and formed a framework for merchants and service providers that would allow each other to optimize their own competitive advantages. Taobao Mall established a set of standards specific to each product vertically to guide merchants and service providers in their practice. All the merchants and service providers in Taobao Mall had to adhere to these standards which covered all aspects of the online retail chain including brand building, product management, customer services and logistics. In addition, the merchants and service providers in Taobao Mall were all carefully selected by Taobao with good quality and high credit rating. Through the mechanism, Taobao Mall would elevate customer satisfaction.

In addition, the 'Big Taobao' strategy meant to be more open. Taobao launched the Taobao Open Platform (TOP) in 2008 which allowed third parties to build applications that could have access to the data from Taobao such as product details, the seller information, etc. With the TOP, developers could develop proper applications to help buyers or sellers make transactions on Taobao. Then developers could earn revenues after Taobao users purchased the application. As a result, shopping or selling in Taobao would be more interesting and convenient which further helped Taobao form a perfect e-commerce ecosystem.

As far as the logistics, Taobao started a big logistics plan. The logistics was one of the most important parts of e-commerce. Over 90% of the process of e-commerce was used in the logistics. Now Taobao's logistics mostly depended on third-party logistics service providers. Therefore Taobao officially launched the big logistics plan including the logistics system, logistics service partners and content standards to provide better logistics service and reduce costs in June, 2010.

Besides the e-commerce business, Taobao has taken part in other kinds of businesses in order to build up an excellent ecosystem. Taobao has stepped into online search business with cooperation with Sogou. Moreover Taobao has expanded to mobile terminals, print media and wired networks. Taobao cooperated with Leveno to launch a mobile handset in order to increase the demand for mobile shopping.

4.5.4 Effects of Taobao's E-Commerce Strategy

We discuss the effects of Taobao's e-commerce strategy as follows.

- Market situation

Online shopping in China has developed rapidly recently. The online transaction volume reached 523.1 billion RMB in 2010, up 109.2% compared with

that in 2009 (Fig. 4.13). More and more consumers chose online shopping. Online transaction volume accounted for 3.3% of the total social consumable turnover in 2010, 1.3% higher than that in 2009 and 2.2 higher than that in 2008. The frequency of online shopping also increased from 6 times semi-annually in 2009 to 10 times semi-annually in 2010. Online retail sales have been one of the important parts in the retail market.

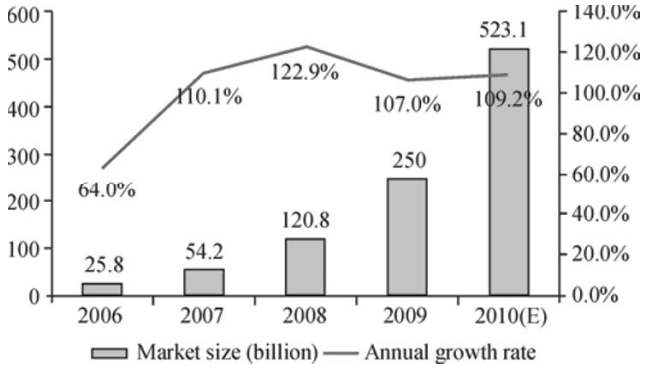

Fig. 4.13 Online shopping market size and annual growth rate in China from 2006 to 2010 (Source: CNNIC, 2010)

● B2C businesses

Since establishment in 2008, Taobao Mall has been the leading platform in the B2C market. Taobao Mall accounted for 40.8% of the total B2C turnover, followed by 360buy.com[1] with 17.6%, Dangdang.com[2] with 4.3%, Amazon.cn with 4.1% and Newegg.cn with 3.8% (Fig. 4.14). Different from other B2C websites, Taobao Mall was a B2C platform instead of a self-operated B2C website. Therefore Taobao Mall did not sell the goods itself but integrated a great many qualified online shops together. In addition, Taobao Mall mostly targeted brand dealers. Therefore Taobao Mall has a strict verifying system and elimination criteria on vendors to guarantee consumer rights and interests. Now there are over 400 million registrants, 4000 vendors and 7000 brands. A lot of world-known brands have opened their own flagship stores in Taobao Mall such as Kappa, Levi's, Esprit, JackJones, UNIQLO, Lenovo, HP and Disney.

[1] 360buy.com is a Chinese self-operated electronic commerce company in China. It was founded in 1998 and headquartered in Beijing. It sells almost 11 kinds of goods including home appliances, digital products, computers, home furnishing, clothes, maternal and child supplies, books and food. 360buy mostly focuses on digital products.

[2] Dangdang.com, is a Chinese self-operated electronic commerce company, founded by Peggy Yu and Li Guoqing in 1999. It is headquartered in Beijing and sells a wide range of items, especially books.

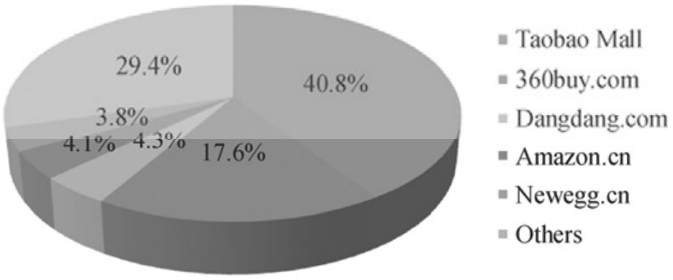

Fig. 4.14 B2C market share in 2010, China
(Source: CNNIC, 2010)

- C2C businesses

According to CNNIC's analysis, Taobao led the C2C business in China, accounting for 95.6% in 2010, up from 81.5% in 2009. The other big C2C websites all lost their market share. The market share of Tencent's Paipai[1] fell from 10.5% in 2009 to 4.2% in 2010 while that of Baidu Youa[2] fell from 2% in 2009 to 0.1% in 2010 (Fig. 4.15). International C2C giant Eachnet, Taobao's long-term rival, launched by eBay in 2002 did not develop well in China, only accounting for 0.1% in 2010, down 6.9% compared with that in June, 2008. There were over 190 million registered memberships in Taobao and the number of independent IP's visiting Taobao per day reached more than 40 million in 2010. According to the world's leading monitoring company Alexa, Taobao's share of users has reached 4.1% of global Internet users, surpassing Amazon and eBay[42].

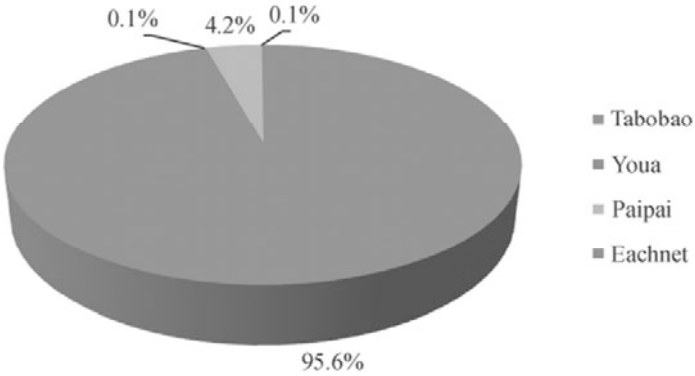

Fig. 4.15 C2C market share in 2010, China
(Source: CNNIC, 2010)

[1] PaiPai.com is a C2C auction site launched by Tencent in March 13, 2006. Tencent Holdings Limited is a publicly owned holding company whose subsidiaries provide Internet and mobile phone value-added services and operate online advertising services in China.

[2] Baidu Youa is an C2C platform through which businesses can sell their products and services at Baidu-registered stores. Baidu, a Chinese web services company headquartered in Beijing, offers many services, including a Chinese language search engine for websites, audio files, and images.

As far as brand awareness, Taobao is the highest in the e-commerce websites, reaching 93.9% in 2009. It primarily results from its good promotion. But its major competitors are all lower than 50%. In addition, the utilization rate and conversion rate of Taobao is also the highest. Taobao's utilization rate was 81.5% with the conversion rate of 86.8%. Although Paipai's brand cognitive was the second highest, reaching 40%, its conversion rate was much lower only with 26.3%. Due to bad presentation in China, EachNet conversion rate was the lowest with 10.4% (Fig. 4.16). Although Eachnet was the biggest competitor of Taobao before, it has been totally replaced by Taobao.

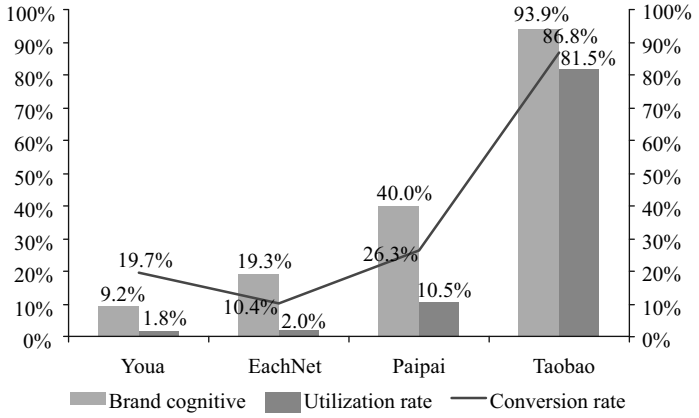

Fig. 4.16 Brand cognitive and conversion rate of C2C websites (Source: CNNIC, 2009-11)

By means of convenient services, Taobao attracted more and more users. Meanwhile, Taobao's users were all loyal and the wastage rate was the lowest. About 94% of users who used Taobao half a year ago still continued to use it in 2009. Most of Taobao's users are satisfied with Taobao's services. A buyer called Veronica has even said "I am quite keen on online shopping in Taobao. For college students, especially girls, shopping in Taobao, or just online is more popular than you imagine." A Taobao seller also praised "Taobao is so nice, so powerful. As a businessman, as a Chinese, I really adore it. It has the strength other companies don't, that is Taobao—create online consumption, guide new market; seize consumption, seize new market and the future!" Compared with Taobao, EachNet lost about 59.7% of users within just half a year. Only 40.3% of users who used EachNet half a year ago still chose to continue using EachNet in 2009 (Fig. 4.17). It can be seen Taobao has defeated EachNet with its excellent e-commerce strategy.

- About Alipay

As the most popular and extensively used online payment tool for e-commerce in China, Alipay has developed very fast since its launch in 2004. Now Alipay is not only used in the transactions in Taobao, but also used in other websites. About 460,000 external merchants such as Lenovo, CCTV and New Oriental use Alipay

as their preferred online payment platform. There were over 300 million users in March, 2010 and daily transaction volume exceeding 1.4 billion RMB in July, 2010. Meanwhile Alipay has received the endorsement of financial institutions including Bank of China, China Construction Bank, Agricultural Bank of China, the Industrial and Commercial Bank of China and Visa because of its advanced e-commerce payment technology and sophisticated risk management system. Since its launch, Alipay has received many honors and awards [43]. In 2005, Alipay was awarded as the "No.1 e-commerce Payment Service" and "Most Innovated Company" by Internet Society of China. In 2006, Alipay was awarded the "Most Trusted Online Payment System" and "No.1 e-commerce Payment Service" by China Association for Quality and CCW Research. In 2007 Alipay was awarded the "People's Choice Awards in Electronic Payment" by E-Business magazine and "China's Excellent E-Payment Enterprise" by China Electronic Commerce Association.

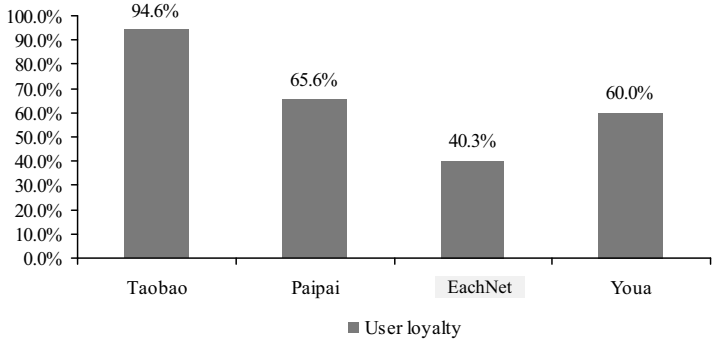

Fig. 4.17 User loyalty of C2C websites
(Source: CNNIC, 2009-11)

- Effect of the 'Big Taobao' Strategy

Based on the 'Big Taobao' strategy, the big Taobao ecosystem has gradually formed. Alibaba, the parent company of Taobao forecast Taobao's gross turnover in 2009 to exceed 200 billion RMB ($29.3 billion) and to double the turnover in 2010 to 400 billion RMB ($58.6 billion). Taobao has established an executive committee to push for the success of the 'Big Taobao' strategy.

In addition, Taobao has diversified its businesses. As a new B2C platform launched by Taobao, Taobao Mall has been the leading B2C platform for retailers in China with over 30,000 major multinational and Chinese brands. Most famous international brands such as Uniqlo, Addidas, L'Oreal Paris, and Revlon have all launched their official online retail storefronts on Taobao Mall. Meanwhile some famous local brands advertised on CCTV also have their own official online retail storefronts on Taobao Mall such as Lenovo and Li Ning.

As for Taobao Open Platform, there are all kinds of applications including sellers marketing platform, visual presentations, items management, inventory management, CRM, analytics tools, mobile applications, overseas market, logistic

services, financial and loan services, buyers' browsing tools, auction and pricing system etc., which gives great convenience to the sellers and buyers. Take a look at a good application named SoTuGou. With the applications, the buyer can upload the picture of the product he wants and the application would analyze the picture and find where to get the product. If the buyer clicks one of the results, the webpage would be directly linked to the Taobao shop selling the product which sounds very perfect and efficient.

Taobao is not only expected to provide an entire set of Internet retail solutions but also create a more comprehensive and extensive service platform to Chinese consumers. Taobao has merged Yahoo Koubei, a lifestyle website focusing on developing lifestyle-related e-commerce, community and communication services to provide better lifestyle services [44]. In the online search business, Taobao launched a search engine website named "YiTaoWang" to solve the problems before and after consumer purchase. With the search engine, Taobao's customers can find appropriate goods faster. Moreover, Taobao accelerated to the mobile terminal, print media terminal, cable network terminals, television terminals. Taobao launched the "Taobao world" lifestyle magazine and "the more fun the more Amoy" television program. Taobao integrated online and offline resources to further expand the market. In addition Taobao plans to establish its own bank called "Alibaba Zhejiang Commercial Bank" to provide small loans to online shopping sellers.

From the aspect of logistics, Taobao established a logistics company named "BaiShi logistics" with Guo Taiming in April, 2008. Meanwhile Taobao has signed cooperation agreements with other third-party logistics providers such as XingChengJiBian, WuZhouZaiXian, ShenZhenHuaQiang to provide logistics service in Chengdu, Shanghai and Shenzhen.

Above all, the "Big Taobao" strategy is becoming more open and diversified. Taobao is trying to build up a good e-commerce ecosystem in all fields of B2B, B2C, C2C, online search, financial support, logistics and terminal support, etc.

4.6 Growth of Industrial and Commercial Bank of China

E-commerce integrates the information flow, logistics system and capital flow. E-commerce cannot develop without support in electronic payment and settlement. In this financial field, banks play the most important role. As the settlement system of commercial banks is gradually improved, the financial support platform of e-commerce has been formed. Electronic money has developed fast and most banks have launched their own electronic banking services. The Industrial and Commercial Bank of China (ICBC) is the largest commercial bank in China with total assets of 12.78 trillion RMB. ICBC has developed Internet banking well and been awarded the "Best Personal Internet Banking of China" by international finance magazine-the Asian Banker.

4.6.1 Basic Condition of ICBC

The Industrial and Commercial Bank of China (ICBC), established in 1984, is one of China's 'Big Four' state-owned commercial banks (the other three being the Bank of China, Agricultural Bank of China and China Construction Bank).

In 2005, ICBC completed the joint stock reform and officially changed its name to "Industrial and Commercial Bank of China Co., Ltd." In 2006, ICBC was successfully listed on the Shanghai Stock Exchange and Hong Kong Stock Exchange at the same time, which was the world's largest IPO at that time valued at $21.9 billion [45]. Now ICBC is China's largest state-owned commercial bank, with assets of more than 4 trillion RMB. And the level of ICBC's e-financial services is at the leading position in the industry, with its e-network coverage of more than 98%. Its annual settlement volume accounts for more than 50% of the total volume of China's financial industry. ICBC offers a wide variety of financial products and services to 3.61 million corporate customers and 216 million personal customers through 16,232 domestic branches, 162 overseas branches and more than 1,504 agents worldwide and other distribution channels such as an online bank, telephone bank, and self-service bank.

ICBC was awarded by the Global Finance Magazine the "Best Bank of China", the "Best Consumer Internet Bank of Asia" and the "Best Corporate/Institutional Internet Bank of Asia" in 2008. The magazine "The Banker" also awarded ICBC the "Bank of the Year in Asia" and "Bank of the Year in China" [46].

ICBC has strong earnings capacity. In 2010, ICBC achieved annual income of 381 billion RMB. The net profit reached 166 billion RMB, up 28.4% year-on-year. In order to enhance the sustainability of the development, ICBC leveraged the growth of all kinds of loans to optimize the credit structure. Meanwhile ICBC improved the investment structure and expanded financial market businesses to increase the operating income. Moreover, ICBC strived to develop intermediary businesses to encourage the diversification. In 2010, ICBC achieved a fee and commission income of 72.8 billion RMB, accounting for 19.13% of the total revenue compared with14.21% in 2008 [47].

ICBC is also committed to improving diversification and inter-market competitive ability, expanding the business from home to abroad, from a traditional commercial bank to an integrated financial services provider. In 2009, ICBC seized the opportunities to enter the market in Canada, Thailand, Vietnam, Malaysia, Abu Dhabi and other countries. ICBC also cooperated with South Africa Standard Bank in a series of businesses. By the end of 2009, the overseas assets of ICBC reached US$ 49.182 billion, up 22.89% year-on-year.

4.6.2 E-Commerce Development Background of ICBC

We discuss the e-commerce development background of ICBC as follows.

- Policy

Chinese government and relevant competent departments are committed to supporting the development of e-commerce. At the end of the 20th century, the Chinese government launched a two-step development strategy planning for ten years to catch up with developed countries in the field of e-commerce. Details of the strategy planning were to develop necessary national e-commerce development policies and regulations; and to build electronic trading systems, payment systems, and monitor security systems as well as training enough e-commerce specialized persons and piloting e-commerce in some industries in the first three or five years; and then to realize the alignment with developed countries in the field of e-commerce and make e-commerce an important component of international commerce in the remaining three or five years. In 2004, China officially launched the "*Electronic Signature Law of the People's Republic of China*" and relevant departments launched the "*Management Regulations for E-banking Services*" and "*Security Evaluating Guidelines of E-Bank*", which played a positive part in the development of e-commerce. The support of national policies provides a strong guarantee for ICBC to fully participate in the development of e-commerce.

- Technology

ICBC set up a software development center in 1996 and its development team began to take shape, which provided a sufficient talent pool for ICBC to develop e-commerce. At the same time, ICBC also actively carried out information technology infrastructure. In 2000, ICBC self-developed a fully functional banking system and a fund remittance and transfer settlement system, realizing the integration of core applications and ensuring that business application systems can continuously run for 24 hours. Meanwhile, ICBC established two major data centers in Beijing and Shanghai and set up the off-site backup system to achieve professional operation and management of the test and production. ICBC's electronic infrastructure has provided technical support for its full participation in e-commerce.

- Market

With everlasting improvement in the technology, there are more and more Internet users in China. In 2006, the number of Chinese Internet users reached nearly 137 million while more than 30 million of them shopped online. It showed that the pattern of e-commerce was gradually been accepted by Chinese people. Especially after the emergence of third-party payments, the bottleneck of traditional e-commerce payment was broken. According to iResearch statistics, there were 31.52 million SMEs in China and the B2B transactions amounted to 480.9 billion RMB in 2006. About 70% of state-owned enterprises were connected with the Internet. General acceptance and participation in e-commerce forms the market on a certain scale.

- Business requirement

After successful listing on the stock market, the customer-focused and benefit-oriented business philosophy is continually enhanced in ICBC. With full liberalization of the financial industry in China, ICBC has participated in the global competition. From the view of large global commercial banks, a large part

of bank earnings are from intermediary businesses. E-commerce can help ICBC develop intermediate and capital services, such as electronic banking, investment banking, bank cards, asset custody and so on. Meanwhile e-commerce will help companies reduce the costs and enhance core competitiveness and market influence which helps ICBC to provide services to customers around the world at low cost.

4.6.3 E-Commerce Strategy and Implementation

The main businesses of ICBC include corporate business, interbank business, treasury business and retail business with the strategic goal of being the leader in the banking industry as well as being a global top financial institution. In order to achieve the goal, ICBC sustainably innovates its business pattern. ICBC leads the investment in data concentration making use of information technology and introduces new products and services, as well as developing a comprehensive risk management system and electronic banking network. ICBC's e-commerce strategy can be summarized as follows:

a) To further develop non-credit businesses in order to achieve the diversification of the asset structure.

b) To develop the credit business and improve the credit structure.

c) To intensify the propaganda of e-commerce and cultivate consumption habits.

d) To enhance the distribution network and strengthen the electronic banking business.

e) To make full use of partnerships with strategic partners.

f) To enhance the training and pay attention to personnel training.

According to ICBC's e-commerce strategy, ICBC mainly focused on five aspects to further develop e-commerce.

- Infrastructure

ICBC knows that an efficient information system is essential for the development of e-commerce. Therefore, ICBC carried out three major projects including data center consolidation, a full-function banking system and data warehouse, in order to set up an advanced international financial information platform. In October 2002, ICBC completed its information infrastructure— "Data Center Consolidation", and set up two data processing centers respectively in Shanghai and Beijing to achieve unified and real-time processing of national operational data. In 2004, the system was integrated, which made Shanghai data center an operation center and Beijing a disaster back-up center. The total processing capacity of the data center reached 17,000 MIPS (millions instruction per second) with 480 million accounts and 20 million transactions per day. Meanwhile, businesses of ICBC's branches in Macau, Singapore, Tokyo, Seoul, and Hong Kong were all gradually connected with the overseas data center for processing. The integrated business system was a super software system, including

23 subsystems such as a fund transfer settlement subsystem, personal finance business subsystem, electronic banking system, credit subsystem, supervising system, accounting subsystem and international business system. During the "Tenth Five-Year Plan" Period, ICBC also launched a full-function banking system named NOVA. NOVA included 19 sub-systems and over 150 application platforms, covering businesses from processing to management, which achieved the transformation from product-oriented businesses to customer-oriented businesses and established a leading position in the domestic financial industry.

- Development system and personnel training

ICBC established a collaboration development mechanism in which Beijing, Shanghai and Hangzhou development departments are responsible for software fundamental development according to joint requirements while tier-one branches are responsible for the system expansion and improvement according to their specific demands. Meanwhile, ICBC established a product test system to ensure software quality. In addition, a software testing environment corresponding to different scales and different responsibilities was established. Moreover, through rich experiences in ICBC's project implementation, ICBC formed an effective technology team during practical development. ICBC also provided regular training for the staff. Now more and more talents are brought into ICBC.

- Product innovation

Relying on information technology platforms, ICBC invested in an updated version of an integrated management system, securities and fund business systems, Internet banking system, mobile and telephone banking system, and a series of financial information products. With advanced technology, ICBC launched a large number of innovational financial products in the domestic market, and also formed new business advantages in electronic banking, investment banking, asset trusteeship, gold business and small business credit. The Internet banking system consisted of three parts, personal Internet banking, business Internet banking and internal management. The personal Internet banking could provide services in 10 categories such as registering individual customers, account processing, customer service, foreign exchange, B-share stock inquiries, a bank-securities link, personal remittances, financial consultancy and B2C services. The corporate Internet banking could provide 7 categories for enterprise customers, such as group financial management, payment instructions, online shopping, credit inquiries, customer service and certificate management services.

- Cooperation with other enterprises

In order to promote the development of e-commerce, ICBC cooperated with a number of strategic partners. In May 2006, ICBC and Alibaba signed an overall cooperation framework in Hangzhou, which was a comprehensive cooperation between China's largest commercial bank and the largest e-commerce enterprise. Under the framework, the two sides would cooperate in the following fields such as e-commerce, related security certification, fund management, marketing and product innovation. In addition, ICBC launched strategic cooperation on online payment, co-branded cards, corporate Internet banking, customer resource sharing and joint promotion with Sohu, Hainan Airlines, Sina and another 12 famous

e-commerce enterprises, which not only marked the beginning of ICBC's involving in network financial services, but also meant the interaction and cooperation between commercial banks and e-commerce industry chain had reached a new stage. Moreover, electronic payment would be well solved through the cooperation.

- Clients

Clients are always ICBC's focus of attention. ICBC has even launched a series of distinctive marketing activities with Tencent, Shanda, Lianzhong, Air China, and China Southern. Through all kinds of incentives and activities, ICBC provides clients with comprehensive and multi-level financial services, prompting customers to form the habit of using online financial products such as Internet banking and electronic banking.

4.6.4 Benefits of ICBC E-Commerce Strategy

As for e-commerce, ICBC plays the role of online payment service provider. Since 2004, ICBC has been the largest online payment service provider in China [48]. When developing e-commerce, ICBC is very keen. When the dot com bubble occurred and e-commerce in China was immature, ICBC found huge potential in e-commerce, which helped ICBC occupy the initiative. Meanwhile, ICBC focuses on its own businesses and actively develops online payment services. In order to develop electronic services, ICBC is committed to developing a solid information infrastructure. In addition, ICBC actively integrates existing resources and develops new businesses such as Internet banking, telephone banking and mobile banking. Moreover ICBC cooperates with other famous e-commerce websites and provides online payment services for them, which further improves the development of ICBC's e-commerce.

- Infrastructure

In infrastructure, ICBC's information infrastructure has been increasingly excellent, which forms efficient e-business services, internal management and office information systems. The network and business data of all 20,073 outlets has been connected and synthetically processed. In addition, ICBC has established a three-level backbone network. The network can be flexibly restructured and expanded according to technology development and business requirements. The bank also promotes the use of mails, document processing and other kinds of office automation systems. Currently, there are over 1.4 million ATM and more than 70,000 POS units in ICBC.

ICBC is also committed to training personnel in science and technology. ICBC now has more than 11,000 scientists and technicians, about 1,600 people among whom are managed directly by the head office.

- Electronic banking

ICBC is committed to creating an integrated business platform including e-banking transactions (Table 4.1), marketing and services. With the platform,

ICBC can accelerate product innovation and take functional optimization according to customer demands to consolidate its leadership in the industry. ICBC introduced a total of 48 new products in 2009, optimized and improved 82 original product features, and its customer services were improved further. ICBC also launched e-commerce, mobile banking (WAP) and other marketing promotion activities to enhance the e-banking brand awareness, driving the growth of customer size and business volume. In 2010, e-banking transactions reached 249 trillion RMB, up 37.3%. The count of the entire electronic banking operations accounts for 59.1%, increased by 9%. The service pattern coordinating traditional physical channels with electronic channels was further formed.

Table 4.1 The amount of e-banking transactions of ICBC from 2000 to 2010

Year	Transaction volume of e-banking (trillion)	Growth rate year-on-year	The proportion in the total business volume
2000	1.93		3%
2001	3.61	87%	5%
2002	8.77	143%	8%
2003	22.3	154%	18%[49]
2004	38.4	72%	20.2%
2005	46.7	22%	26%[50]
2006	45.2	-3.2%	30.1%[51]
2007	102.9	127%	37.2%[52]
2008	145.3	41.2%	46.2 %[53]
2009	181.31	24.8%	50.1%[54]
2010	249	37.3%	59.1%

- Internet banking

ICBC sticks to customer-orientation, and gradually launched kinds of specials products such as the VIP version of personal Internet banking, small purchase of foreign exchange, mobile banking (WAP) with functions of payment, installment, funds, gold trading and other financial management. All of these things effectively meet customers diversified and individual needs. Meanwhile, ICBC also launched an inter-bank online management system for large enterprises and online accounting software for small and medium size business customers to enhance the capability online of corporate banking services. ICBC also introduced an online financial supermarket and remittance to overseas VISA products, which provided more convenient online banking services for individual customers.

In addition, ICBC's internet banking was well accepted by the public. ICBC's internet banking was awarded the "Best Integrated Corporate Banking Global Website" and "Best Personal Internet Banking" by "Global Finance" magazine. And when people chose Internet banking, most people preferred ICBC. In Enfodesk's market survey of Chinese online banking statistics in 2009, 34% of Internet banking users set ICBC as their preferred bank, ranking it first (Fig. 4.18) [55].

In iResearch's survey data on Internet users behavior, ICBC's monthly number of covered people was ahead of others, up to 3,313 million in September 2009 (Fig. 4.19)[55].

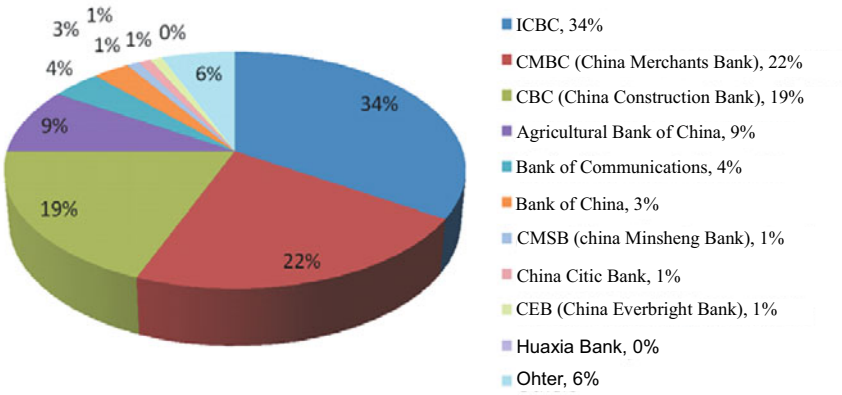

Fig. 4.18 Distribution of preferred Internet Banking in Q1, 2009 (Source: iResearch)

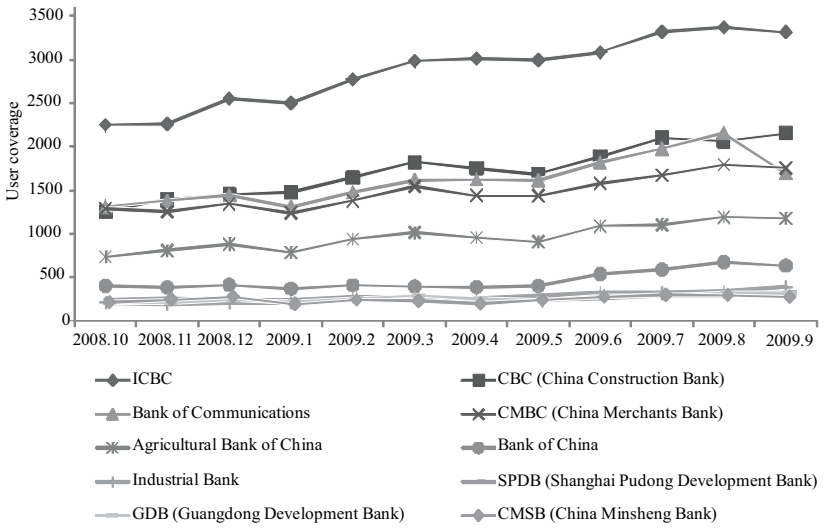

Fig. 4.19 Top 10 monthly user coverage of Internet Banking in China from October, 2008 to September, 2009 (Source: iUserTracker 2009.10)

With ICBC's continuous innovations and people's approval of ICBC's Internet banking, its online banking business is developing smoothly. By the end of 2010, online business banking customers had reached 2.39 million, 500,000 more than that in 2009 (Table 4.2); personal online banking customers had reached 9,623

million, 2,087 million more than that in 2009 (Table 4.3). Corporate Internet banking achieved a turnover of 198.4 trillion RMB, up 46.6% (Table 4.2); personal online banking achieved a turnover of 28.5 trillion RMB, up 60.1% (Table 4.3).

Table 4.2 ICBC's customer numbers and turnover of corporate Internet banking

Corporate Internet banking	Amount of customers (million)	Transaction volume (trillion RMB)	Growth rate of transactions (%)
2007	0.98	85.74	133.8
2008	1.44	110.5	28.9
2009	1.89	135.4	22.5
2010	2.39	198.4	46.6

Table 4.3 ICBC's customer numbers and turnover of personal Internet banking

Personal Internet banking	Amount of customers (million)	Transaction volume (trillion RMB)	Growth rate of transactions (%)
2007	39.08	4.2	205.1
2008	56.72	9.8	135.4
2009	75.36	17.8	82.3
2010	96.23	28.5	60.1

- Telephone banking

ICBC completed the integration of telephone banking reconstruction, and launched special services such as the one-number unified payments services and VIP hotline. The voice menu of telephone banking was also optimized in order to provide more friendly services.

- Mobile banking

ICBC launched a 3G version of mobile Banking (WAP), providing customers with more convenient and efficient inquiry, transfer, payment and other banking services. The number of mobile phone banking customers and the transaction amount grow rapidly, occupying a leading position within the industry. ICBC was awarded "Best Mobile Banking" by the China Electronic Commerce Association.

- Self-banks

ICBC continued to increase the investment in self-service terminals and optimized the layout of self-service equipment. ICBC improved self-terminal functions and optimized its operational processes to enhance self-services' efficiency and reduce the pressure at bank counters. At the end of 2010, ICBC had 11,414 self-service terminals, up 30.8% from 2009. The number of ATMs was increased to 42,868, up 25.8%. The ATM transaction volume reached 33,753 billion RMB, up 64.9%.

4.7 Rise of Lenovo

Lenovo Group Limited is a Chinese-based multinational computer technology corporation that develops, manufactures and markets desktops and notebook personal computers, workstations, servers, storage drives, mobile handsets, IT management software, and related services[56]. As mentioned above, Lenovo acquired the former IBM PC Company Division, which marketed the ThinkPad line of notebook PCs in 2005. Within less than five years, Lenovo has grown into a top PC vender in the world. Compared with IBM's strategic transformation, Lenovo's principal operations are in the hardware industry. It is interesting to find out how Lenovo takes advantage of e-commerce to vitalize the enterprise.

4.7.1 Introduction to Lenovo

In 1981 IBM PCD introduced its first personal computer, the IBM PC. The annual marketing turnover of IBM PCs reached US$5 billion in 1984 and accounted for 50% of the world's PC production. In the same year, with an initial capital outlay of only RMB 200,000 (US$25,000), Lenovo's founding chairman Liu Chuanzhi, together with 10 like-minded colleagues, launched the New Technology Developer Inc. (the predecessor of the Legend Group) funded by the Chinese Academy of Sciences[57] in a rented gate house, HaiDian District, Beijing, China. The main business was selling calculators and assembling compatible computers. After over 20 years of development since the foundation, the company has developed into a multinational corporation with nearly 24,000 employees around the world. According to the press release by IDC in Oct, 2011, Lenovo has unseated Dell as the No. 2 PC manufacturer worldwide[58]. The company reported its revenue of $21.6 billion for the FY 2010'11, increasing from $16.6 billion. The net profit increased to $217 million, over double the previous year. With the integration of IBM's PCD on track in 2005, Lenovo Group Limited Board of Directors appointed William J. Amelio as President and Chief Executive Officer to accelerate Lenovo's planning for its next phase of growth. Lenovo Headquarters are located in Beijing, China and Raleigh, the capital city of the state of North Carolina. The manufacturing and logistics bases are mainly located in China, Mexico, the United States, India, Malaysia, Japan and Australia. With nearly 2,000 top-ranking R&D personnel including world-class technical experts, Lenovo has mastered core technologies of independent intellectual property which take the DeepComp 1800 as a representative. The DeepComp 1800 is China's first computer with 1,000 GFLOP (floating point operations per second) and China's fastest computer for civilian use [57].

In the development process, Lenovo is bold in making innovations and has realized a lot of major technical breakthroughs successfully, including the Legend Chinese-character card in 1987 which can translate English operating systems into Chinese ones, the Internet PC in 1999 with the "one-touch-to-the-net" feature

which enables millions of Chinese PC users to easily access the Internet and the Collaborative Computing technology in 2003 which established Lenovo's important position in the era of 3C. With advanced personal computers, Lenovo reached the summit of China's IT industry. At the end of 2011 Lenovo became the fifteenth consecutive annual market share leader in China.

Company history is concluded below [57]:

1984: The New Technology Developer Inc. (the predecessor of the Legend Group) was launched.

1987: Legend successfully rolled out the Legend Chinese-Character Card.

1988: Legend's Chinese-Character Card received the highest National Science-Technology Progress Award in China.

1989: Legend Group was established in Beijing.

1990: The very first Legend PC was launched in the market.

1993: Legend enters the Pentium era, producing China's first "586" PC.

1994: Legend was listed on the Hong Kong Stock Exchange. The Legend PC business division was formally established.

1995: Legend introduced the first Legend-brand server.

1996: Legend became the market share leader in China for the first time.

1997: Legend launched the first multi-function laser printer.

1998: The millionth Legend PC came off the production line. The first Legend Shop was established.

1999: Legend became the top PC vendor in the Asia-Pacific region and headed the Chinese national Top 100 Electronic Enterprises ranking. Legend began to promote the first generation of networked PC's titled "Conet" or "Tianxi." Plan.

2000: Legend became a constituent stock of the Hang Seng Index - HK. Legend ranked in top 10 of world's best managed PC venders.

2001: Legend successfully spinned off Digital China Co. Ltd., which was separately listed on the Hong Kong Stock Exchange. Legend appointed Yuanqing Yang President and CEO.

2002: Legend introduced the supercomputer DeepComp 1800. It was China's first computer with 1,000 GFLOP (floating point operations per second) and China's fastest computer for civilian use, ranked 43rd in the Top 500 list of the world's fastest computers.

2003: Legend announced the birth of its new "Lenovo" logo to prepare for its expansion into the overseas market. The DeepComp 6800, which ranked 14th on the global list, was successfully developed.

2004: Lenovo became an Olympic worldwide partner. It is the first Chinese company to become a computer technology equipment partner of the IOC.

2005: Lenovo completed the acquisition of IBM's PCD, making it a new international IT competitor and the third-largest personal computer company in the world. After that, Lenovo established a new Innovation Center in Research Triangle Park, N.C., to enable customers, business partners, solution providers and independent software vendors to collaborate on new personal computing solutions.

2006: Lenovo introduced the first dual-core ThinkPad notebook PCs,

improving productivity and extending battery life for up to 11 hours. In the same year, the first Lenovo-branded products outside of China debuted worldwide. Lenovo technology flawlessly supported the 2006 Olympic Winter Games in Torino, Italy, supplying 5,000 desktop PCs, 350 servers and 1,000 notebook computers.

2007: Lenovo's strategy orienting the 2008 Olympics Games was put into the comprehensive implementation phase.

2008: Lenovo technology and products flawlessly supported the 2008 Olympic Games in Beijing, China.

2010: Lenovo achieved its highest ever worldwide market share and becomes the world's fastest growing major PC manufacturer.

4.7.2 E-Commerce History of Lenovo

In Lenovo, the development history of E-commerce can be divided into four phrases [59].

(1) 1994 – 1995: Manual operation

In 1994, Lenovo's agents contacted sales representatives by telephone and all sales data needed artificial input to the financial system (Fig. 4.20). In 1995 the Board of Trade was established to replace the former functions of sales representatives. Faxes were introduced to improve the work efficiency. But generally speaking, these kinds of manual operations brought Lenovo a lot of problems.

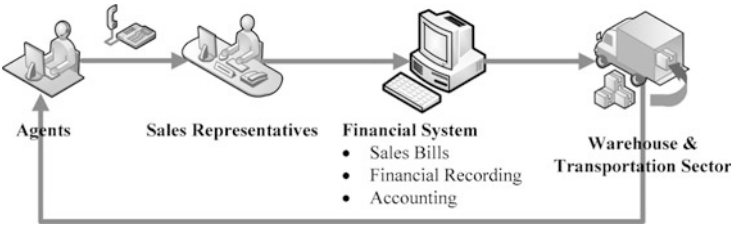

Fig. 4.20 Transaction flow diagram in 1994

(2) 1996 – 1998: Electronization—static information release

Order Management System, Sales Bills Processing System and Rebates Management System were built up to control the intern transaction flow diagram in 1996. Voice Mailbox was used to release quotations, bank statements and other kinds of policies. But all the cancellations of bills after verification were still done by hand. In 1997, Lenovo began to design the e-commerce solution to replace the former Voice Mailbox. Detailed implementation steps were established too. The Bills Management System was released to deal with the cancellations in turn automatically (Fig. 4.21).

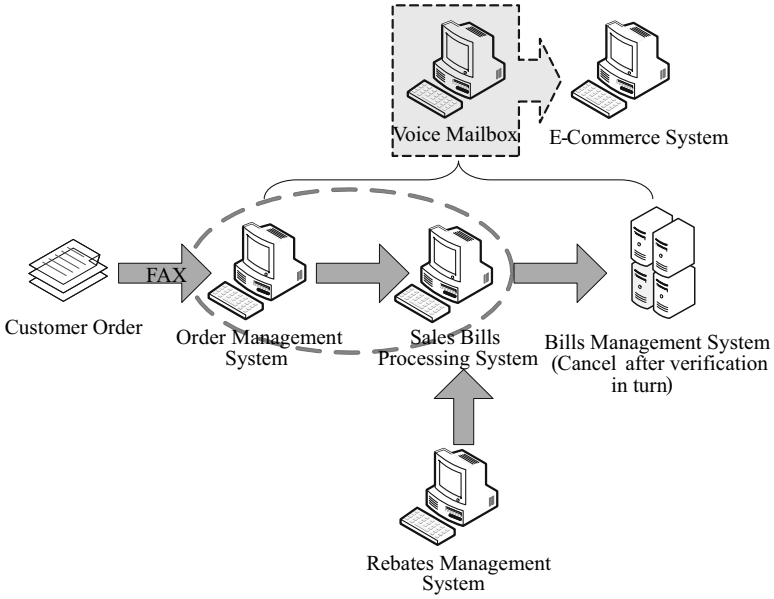

Fig. 4.21 Transaction flow diagram in 1997

The first generation of Lenovo's e-commerce system (Fig. 4.22) made its debut in 1998. Although it was a website which only released static information, it laid the foundation for the full implementation of e-commerce. With the system, policy-making departments could easily deliver the latest policies to each division in Beijing, Sales Representatives among the major regions and Lenovo agents.

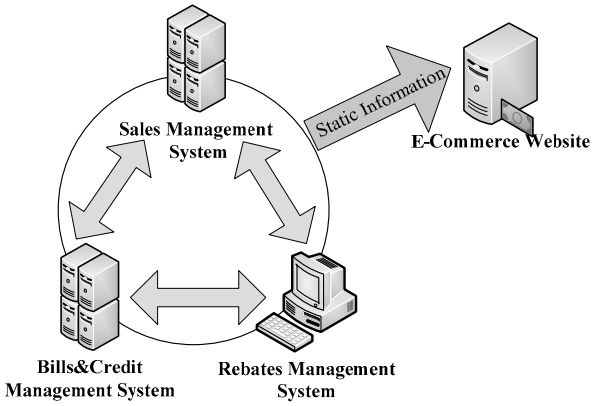

Fig. 4.22 The first generation of e-commerce system

(3) 1999 – 2000: Dynamic interaction

A great leap has taken place from the first generation of e-commerce systems to the second generation introduced in 1999. The new system (Fig. 4.23),

integrated with the Transportation Management System and MRPII (Materials and Resource Planning System), improved the whole business process, realized the smooth link with the Financial System and unified the SQL Data Platform. Customers could submit orders online and enjoy dynamic information inquiry from then on. Lenovo's relevant staff could finish the collection and confirmation of new orders in the system running on the internal LAN.

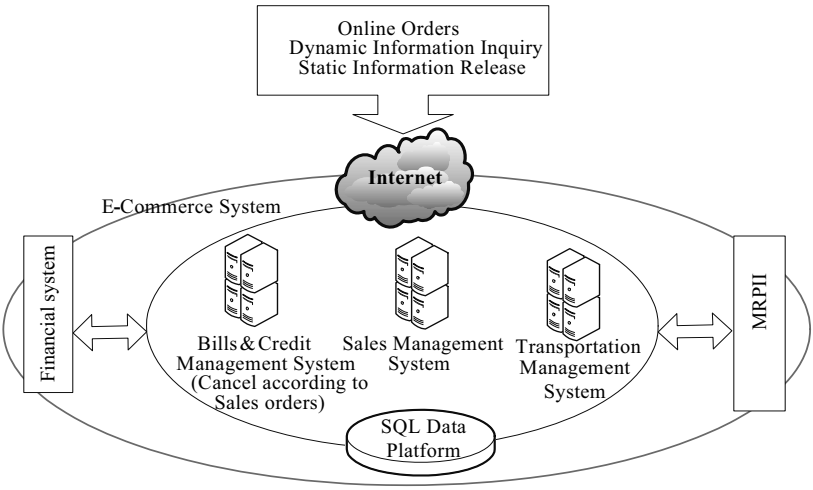

Fig. 4.23 The second generation of e-commerce system

In January 2000, just several months later, Lenovo put forward the ERP system based on e-commerce.

(4) 2001 – present: System integration

From 2001 Lenovo made great efforts to expand the sales channels as well as to realize the integration of them. To extend the traditional supply chain composed of purchase, manufacture, R&D, sales and inventory, the information systems of agents and suppliers were connected to the enterprise system. In addition, all Lenovo exclusive agencies could upload business data and download product details through the Internet. To solidify the development of e-commerce, the Partner Relationship Management system, CRM and SCM were put into operation successively during the following years. In order to improve the efficiency of the trading platform, electronic orders gained their legal effect; the information systems of banks provided an interface for online paying; carriers' websites supplied real-time logistics information for queries and tracking. An integrated system was built up to connect upstream and downstream enterprises, cooperative firms and Lenovo's system.

It can be clearly seen from the above four phases that the construction pace of e-commerce in Lenovo was accelerated with marked results. Benefiting from proper e-commerce strategy, Lenovo has made extraordinary progress almost each year in the developing history of e-commerce.

4.7.3 Strategic Background

At the initial stage, Lenovo confirmed the strategic objective of 2010: To rank among the world top 500 enterprises with a high-tech company image which involves production, sales and R&D as well. Together with this strategy, Lenovo made the three-step implementation plan: the first step was to 2000, to make an entrance into the top 60 in the worldwide computer industry with a turnover of $30 billion and profit of about $100 million; second, to realize the turnover of $10 billion and get closer to the entry criteria of the world's top 500 in 2005; the third step was to become a Fortune 500 entrant and get access to the chip R&D market before 2010. On July 8, 2008, FORTUNE published the 2008 annual Top 500 Global Corporations on its web site in which Lenovo ranked 499th. At China's reform and opening up 30th anniversary, Lenovo finally realized the strategic objective. In order to achieve the long-term development strategy, it is necessary for Lenovo to adjust its main direction and development policies according to its own development level, the change in the market and the development of technology. Lenovo's e-commerce strategy came into being with this background.

From 1984 to 1988, Lenovo developed into a large company with nearly 1,000 agents across the country. In this period, Lenovo contacted all agents by traditional telephone and fax. During the course of communication, a problem arose: it was such a tough job for agents to know a price adjustment quickly. First, Lenovo had to inform the Marketing Department in Beijing of the price changes, then the Marketing Dept. would notify major regions, and after that the information would be transferred to regional sales representatives. At last all agents got the message one by one through telephone or fax. Due to the slow method of delivery, the nearer to the core department agents were, the earlier they knew the changes, while the farther selling agents did not know the message until the customers who saw the advertisement somewhere else and who went to complain. Agents all complained about this method and hoped for relevant information in time, which made Lenovo very passive.

This made Lenovo determined to change the information release system so that all agents hopes could come true. This decision contributed to the construction of the static information release system.

In 1998, the capital of Lenovo was only turned over 1.7 times a year; the payoff period for Accounts Receivable lasted for several months; non-raw materials cost more than 20% and losses because of overstock accounted for 5%. That is to say, Lenovo would make profit only when it grossed over 25%. While at that time international manufacturers such as IBM, HP and Compaq only made a profit of 25% they spent much less on materials and turned over their revenues much quicker. What's more troublesome, adopting the traditional method, business accounting in Lenovo was neither accurate nor timely, which made the enterprise unable to provide timely cost control. A lot of arbitrariness occurred in administrative control. For example, if client had bought 100 hard disks, and then found two broken, they could just change the price at will rather than claim an indemnity. The requirements of improving management, strengthening supervision

and reducing the costs promoted Lenovo to build its own ERP system.

Until 1998 Lenovo was still using the traditional marketing mode. In this mode, the enterprise planned for production and appropriately adjusted it according to sales. Produced goods were put in storage. The sales staff sold products in accordance with stock. For the kind of products which was sold faster more would be produced to ensure inventory quantity. But there was a problem that computer products get upgraded and replaced too quickly. Sometimes the enterprise could not detect market changes in time. Even though Lenovo discovered the change, it was too late to adjust the production plan, which resulted in an immediate consequence of overstocks. Lenovo strongly hoped to meet the market demand speedily, to avoid large stocks and to make quick adjustments to changes. The requirement did urge Lenovo to construct the SCM system.

In market development and customer service, Lenovo also encountered the following problems. To serve larger quantities of customers, different business personnel in Lenovo were arranged to manage different clients. All the customer information and related data were stored only in the minds of business personnel but could not be fully utilized or effectively centralized. More seriously, once some business personnel quit, the customer information, even the customer base, would go with the employee. The urgent need to provide quality services, to improve customer satisfaction and to retain the user urged Lenovo to launch the CRM system.

According to the above, we can see that there is a certain degree of similarity between e-commerce strategies of Lenovo and IBM. Both of them are passive. But this does not mean everything. It is important that in the process of carrying out e-commerce, Lenovo has recognized that many enterprises were facing the same situation. The company fixed providing e-commerce solutions for other companies in an important position. Furthermore, after experiencing this kind of passive adaptation, Lenovo learned how to take the initiative to adapt and make self-adjustment, and soon after put forward a more forward looking e-commerce strategy, which proved Lenovo superior to others. Lenovo executives said: e-commerce is not to simply “electronize” business, but contains the informatization of the entire internal operation system and the business process re-engineering and optimization. E-commerce makes business more efficient, reduces costs and meanwhile increases customer satisfaction via convenient and personalized services. In the domain of enterprise informationization and Internet applications, Lenovo will act as a practitioner, a utilizer and an active contributor as well.

4.7.4 Details of Lenovo’s E-commerce Strategy

To sum up, the essence of Lenovo’s e-commerce strategy is to develop e-commerce step by step from passiveness to taking the initiative, from low level to high level, from local to the whole and from internal to external, so as to improve the overall e-commerce level of Chinese enterprises and serve China’s

e-commerce. The strategy is aimed at becoming the promoter and the rule maker of China's e-commerce.

In early 1998, Lenovo launched the online static information release system, which was considered the first generation e-commerce system in Lenovo. Although the system was fairly simple, it met the urgent need at that time. With the system, agents could learn the latest product news, market policies, business regulations and supply information about Lenovo through the network. This was a one-way connection by which users could understand the situation of Lenovo while Lenovo could not learn about customers and the market.

The system in use brought great convenience to agents, but still left some extremely obvious problems. Based on the successful operation of the system above, Lenovo summarized the experience and introduced the second generation e-commerce system. In this system, websites were joined with Lenovo's internal business processing system. Agents could place orders through the network to Lenovo at any time. The orders were then automatically passed into the internal orders allocator to determine delivery time. Users could query real-time accurate information like the delivery time, delivery location and the tracking position of goods on the website. It made a great contribution to reasonable arrangements for the supply and service to end-users.

The second generation e-commerce system basically realized the electronization of foreground commercial activities, which meant e-commerce in the usual sense. But the performance of the system was incomplete without support from the background electronic system and the after-sales electronic system. To constitute a more complete and comprehensive e-commerce system, Lenovo established the SCM, ERP and CRM system that truly enhanced the core competitiveness of Lenovo. With the help of the CRM system, service personnel were able to grasp all information about one user including the preferred computer model, purchase date, pre-installed software, problems he\she had encountered before and the service history. Customers felt themselves at home. In addition, problems got solved successfully.

Having achieved great success, Lenovo made e-commerce strategies for the next phase: to positively conclude its own successful experience of e-commerce, put forward e-commerce systems and models appropriate for China's enterprises' situation according to the enterprise informatization level and development laws; taking advantage of its own technologies, to launch different e-commerce application solutions and e-commerce service solutions; making full use of Lenovo's influence and actively cooperating with government departments, to promote the application of related e-commerce firms as well as the development of e-commerce across the country. Lenovo is at this stage right now with feasible strategic measures.

(1) Founding the Digital China Holdings Limited (Digital China)

To brave the challenges of e-commerce and to seize the good opportunities, the Legend Group conducted a strategic split in April 2000. Digital China was founded by the mergers of the original Legend Technology, Legend Integration and Legend Network. On June 1st, 2001 Digital China was listed on the main

board of The Stock Exchange of Hong Kong Limited[60]. Digital China is committed to providing Chinese users with state-of-the-art e-commerce infrastructures, solutions and services with a sense of responsibility and continuous innovation. Nowadays Digital China is a leading integrated IT service distributor in China, and is also the largest professional system integrator as well as a well-known supplier of networking products across the board. It focuses on eight major business segments in the China market: IT Planning, Business Process Outsourcing, Application Development, System Integration, Hardware Infrastructure Services, Maintenance, Hardware Installation, Distribution and Retail. Main products contain the product line for the enterprise-level backbone network and Metropolitan Area Network and SME-oriented DSC series switchboards, which have been widely used in government, education, business, telecommunications, finance, military, medical and other industries. After several years of efforts, except for complete product lines, Digital China developed a wide range of personalized products for education and government, and presented a series of industrial solutions based on the wishes of customers. Moreover, Digital China took the lead into the high-end value-added services market. Through continuous exploration and efforts, value-added services achieved a rapid growth. Digital China has become No. 1 among value-added service providers. In the field of enterprise informationization, Digital China Management Systems Limited ranks first in domestic ERP software vendors. On the value-added services platform of Digital China are gathered more than 30 well-known international IT companies, 3,500 integrators, independent software developers, agents and other partners to provide customers with enterprise-level hardware and software products, backbone networks, basic network devices and comprehensive solutions. The company also has its own brand of networking products and solutions developed by the staff, which powerfully supports the Chinese e-commerce process. To the end of March 2010, the Group realized a total turnover of 50.178 billion Yuan, an annual growth of 18.55%, much higher than the growth rate of the same period in China's overall IT market.

(2) Striving for the strategic transfer to the Internet

Comparing with IBM's strategy "embracing the Internet overall", Lenovo's strategic transfer is similar to it in form but quite different from it in content. Lenovo focuses on how to help Chinese users realize the Internet dream. 1999 was the first year that Lenovo's strategy turned to the Internet. The operation of the e-commerce system "is a thing of great signification in Lenovo's history and will drive the implementation of Internet strategy" Yang Yuanqing, general manager of Lenovo, said. In March 1999, at the exhibition of COMDEX/China, Yang announced that Lenovo would start the full implementation of Internet strategy. It was the first time for Lenovo, and for China's IT companies to make a public, comprehensive and systematic strategic philosophy and framework orienting the Internet. Lenovo would strive to provide more, cheaper and better functions and applications, more useful means and tools for Internet users in China. The critical step Lenovo took to meet the waves of the Internet was to flourish "Internet Time Featured Computers" at first. For the purpose of the strategic transformation from

"a computer function integrator" to "a comprehensive Internet products and services provider", Lenovo decided to take the Internet as the core and build the company's own products and services around it.

Specifically, Lenovo starts off with three domains to achieve the national Internet dream. They are, respectively, access products, infrastructure products and information services. Access products include the reading room computers and living room computers for family users, mobile computers for business users etc. As to infrastructure products, Lenovo pays attention to servers. The company develops dedicated servers for the Internet application model which are called Application Servers, puts forward application projects based on Lenovo Tower Servers and optimizes the hardware performance of servers according to the requirements of the Internet. When it comes to information services, Lenovo published *Happy Home* for families, *My Office* for office workers, *Lenovo Full Mark School* for students and *Internet Farther* for the under aged. Access products, infrastructure products and information services together form the new three-terminal product architecture for Lenovo. The core of this structure is just the Internet. The function is to lead Chinese households, businesses and society into the Internet world more quickly. To coordinate with the Internet strategy, Digital China has been introducing routers, network management software, network security products, switches, hubs, network cards, etc., all of which belong to Lenovo's own brands. These endeavors sound the horn of Lenovo on the march to the Internet world.

(3) Developing e-commerce solutions adequate for China's actual conditions and serving China's enterprises

Lenovo proposed the enterprise e-commerce solutions "Web Shop". It is a front-end e-commerce platform for enterprises created on the basis of Lenovo's ERP solutions for manufacturing industry. It is seamlessly integrated with the back-end ERP system and allows users to log in to the ERP system through a browser. Users can place orders, check the implementation status of orders, cancel orders, choose different product accessories such as different colors and different materials, select the delivery date, select bulk delivery or partial delivery, grasp sales promotions, discounts, distributions and so on directly on the Internet. Later, Lenovo launched CTI II as the core technology of Lenovo Call Center. Compared with traditional CTI technology, it places emphasis on Information and the Internet. It is easy for CTI II to realize the IP phone, the IP fax based on CTI technology, and the call center and unified information processing combined with the Internet. At the same time, it is good at dealing with complex interactive problems, personal services, fuzzy response, flexible treatment, repeated inquiries, work assignment and tracking, recording for evidence and quality of service dialogue. The Call Center series solutions have proved to be superior to the past in improving the utilization rate of communication paths, increasing labor productivity and improving the quality of service with less manpower, which is applied to public service trades like finance, insurance, shipping, tourism and telecommunications.

4.7.5 What Lenovo Gets

The most wonderful benefit Lenovo gets from e-commerce is the internal cost savings. The inventory turnover time fell from 72 days in 1995 down to 22 days in 2000. Referring to 963 million RMB, the average balance of deposits in 2000, it meant saving 2.1 billion RMB. From the cost of the capital perspective, e-commerce reduced the cost by 126 million RMB. The total lost revenue caused by backlogs was pegged at 0.19% in 2000, much less than that of 2% in 1995. Compared to annual sales volume in 2000 at 20 billion RMB, the decrease equalled saving 362 million RMB a year totally, including a cost reduction of 47 million RMB. The turnover time of accounts receivable changed from 28 days in 1995 to 14 days in 2000. The ratio of accounts receivable and bad debt in gross revenue dropped from 0.3% in 1995 down to 0.05% in 2000. The cost of online resource booking, travel and office supplies reduced about 10%. The above all added up to an annual total cost of over 600 million RMB, which was enlarged approximately proportionally to the increase in business turnover and the decrease in cost. Thus, in terms of 2005 turnover at 80 billion RMB, Lenovo saved nearly 2.4 billion RMB within one year.

After establishing e-commerce systems, a large number of orders were delivered via the Internet. This change greatly reduced the error possibility of orders, saved the time and energy of counter parties to examine and verify orders. Moreover, the system also improved the information transmission efficiency. With the help of e-commerce systems, agents could track orders' execution states through the network at any time.

The implementation of ERP resulted in more accurate cost accounting to Lenovo that avoided delay and inaccurate data in time. Before ERP came out, in Lenovo there were 44 independent legal accounting entities, 15 independent accounting divisions, 179 profit centers, 32 functional departments and more than 1,400 cost centers, which produced more than 2 billion items monthly, over 40,000 orders, 1,000 purchases and more than 4,000 expenditures.

At the end of each month, at least 70 personnel from the financial sector were needed to work overtime for accounting. Even so, it took 30 days to get an inaccurate financial statement. After the implementation of ERP, monthly report forms from each independent legal accounting unit could be made out in only half a working day later than accounts, and financial statements from the headquarters took only five days even though Lenovo never stopped growing.

ERP also improved the financial control and supervision, which reduced the difficulty and arbitrariness of artificial operations, effectively minimized the vulnerability of financial management and put an end to corruption.

After implementing SCM, Lenovo was able to meet requirements of customer orders quickly, and avoided overstock as well. With the implementation of CRM, personnel changes would not lead to service disconnection which helped Lenovo serve customers more effectively. Network office, financial management, SCM and e-commerce saved 350 staff for Lenovo in 2000, which meant that labor productivity was increased by 7%.

To sum up, implementing ERP, CRM and SCM systems has optimized internal management, increased the resource utilization rate, accelerated the speed of response to market changes and improved customer relationships. All these obvious social benefits are essential to the healthy development of enterprises. The beneficial changes caused by the use of the above e-commerce systems ensured the smooth implementation of long term development strategy and laid a solid foundation for the realization of long term strategic goals. These effects of high importance will find their expression in many ways other than economic indicators.

4.8 Conclusions

In recent years there has been a dramatic increase in enterprises and companies practicing e-commerce. The emerging conventional wisdom suggests that e-commerce is different enough to warrant an in-depth examination of traditional organization design in the present global scenario; e-commerce has increasingly become a necessary component of business strategy [61].

In the strategy initiation phrase, an organization reviews the information about itself, like its vision and mission, strengths and weaknesses, analyzes its competitors and competitive position, and recognizes its strategic environment. Then, according to the outcome, the enterprise decides all detailed initiatives which make up the e-commerce strategy for the enterprise and the implementation order. Initiatives generally include a list of approval of e-commerce projects or applications, risk management plans, pricing strategies, and a business plan that will be implemented later [62].

From the very beginning of the e-commerce strategy cycle[62], different companies meet with diversified situations, so they formulate different strategies to solve their unique problems. E-commerce coupled with the appropriate strategy and policy has helped a large number of enterprises and companies. Some e-commerce strategies have become classic business issues. In this book, only seven companies are referred in which four are from China. Although strategies differ from each other, we can compare and distinguish all these e-commerce strategies by *Brick-and-Click* or *Brick-and-Mortar*.

During the practice of e-commerce, two basic modes of organizing companies have emerged. The first is creating a *brick-and-mortar* (also called *move-to-the-Internet*) company in which an e-commerce division may be installed. The second is founding a *brick-and-click* (also called *born-on-the-Internet*) company as an electronic commerce company, without previous organizational links to a traditional brick-and-mortar organization. Whether a company is a *brick-and-mortar* or a *brick-and-click* business is a key classification index of e-commerce strategies. Both modes of corporate practice of e-commerce require redesign, recalibration, and even restructuring of key organizational dimensions. IBM, GE, Haier, ICBC and Lenovo all belong to *brick-and-mortar* companies. No

matter whether they are active or passive in joining the e-commerce procession, they have to make great efforts to transform the existing value chain. Companies like Google, Taobao and many other well-known enterprises we have not analyzed, like Amazon, Yahoo and eBay etc., are called *brick-and-click* businesses which prefer building a brand new web based value chain. Table 4.4 describes the substantial assets and liabilities of the two modes of companies that influence their ability to formulate and implement an e-commerce strategy.

Table 4.4 An e-commerce strategy balance sheet for brick-and-click and brick-and-mortar companies[62]

	Assets	Liabilities
Brick-and-click company	• Executive management tends to be young and entrepreneurial and is willing to take risks and make commitments for the long-term. • Some funding is available to start the project. • The organizational structure is flat and flexible, with wide spans of control, so the organization can respond rapidly to change. • Information systems are new, allowing rapid implementation of fast, Web-based services that customers demand. • The company as a whole is agile, flexible, hungry for success, and looking to topple the market leader from its perch. • An innovative idea exists, possibly patented.	• Executive management tends to be focused on the short-term, looking after satisfactory next quarter results and going IPO rather than the long-term viability of the company. • Product knowledge, logistics channels, and value chain partnerships must be built from scratch. • The lack of a brand, reputation, and physical presence raises issues of quality uncertainty among customers. Assets such as brand and reputation must be built, at considerable cost. • The Brick-and-Click business must be built from scratch, using limited venture capital funds or bank loans. If results and revenues do not appear fast, the company will go under. • The initiators frequently lack managerial experience or capabilities; yet they hold the CEO position.
Brick-and-mortar Company	• A customer base and decades of knowledge about customers and their requirements are available. This knowledge base can be mined to anticipate customer needs and demands. • The company is willing and able to take risk. • The company has the knowledge and personnel to undertake (or outsource) the project. • Years of experience in the product marketplace are available to the company, which knows what its customers buy, how they buy, and why they buy. • An established brand, a marketplace reputation, and a physical presence give customers reassurance in terms of trust, long-term viability, and convenience. • The initiation of an E-commerce application or project can be funded from existing or redirected resources. A long-term commitment to funding an E-commerce application is possible.	• The customer base on day one is zero, and each new customer must be acquired from an existing firm within a competitive marketplace. Need to spend big money on customer acquisition. • The organizational infrastructure is old and lethargic, with layers of management that make responding to change difficult. • Legacy information systems make implementation of strategic E-commerce applications difficult. • The company as a whole is rigid, satisfied with the established way of doing things and, if it is an industry leader, complacent in its market prominence. • Resistance to change from the existing parts may slow down or even "kill" the move to the Internet.

Studies on the e-commerce strategy implementation phase have found that the implementation of e-commerce depends heavily on the application of information and communications technologies (ICTs). The integration of ICTs in business has greatly improved inter and intra organizational relationships. E-commerce also acts as a strong catalyst for economic development. Specifically, with the help of ICTs, many companies have improved productivity, encouraged greater customer participation, and enabled mass customization as well as reduced costs. Thanks to the developments in the Internet and Web-based technologies, differences between traditional markets and the global electronic marketplace are gradually being narrowed down[61]. Workable and practicable e-commerce strategy can bring companies direct economic benefits and defend their competitive positions as a result. Statistical data and analytical conclusions of the effect of e-commerce strategy implementation on all companies in this chapter have fully proved this point.

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