RESOURCES AND CAPABILITIES IN HIGH-TECH ENTREPRENEURSHIP:  
A STUDY OF TWO GENERATIONS OF CHINESE STARTUPS

by

Lin Xu

B.S. Economics  
Zhongnan University of Finance and Economics, 1985

M.S. Commerce  
Hitotsubashi University, 1994

Submitted to the Alfred P. Sloan School of Management  
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Signature of Author:

MIT Sloan School of Management  
March 07, 2002

Certified by:  

Michael A. Cusumano  
Sloan Management Review Distinguished Professor of Management  
Thesis Supervisor

Accepted by:  

Birger Wernerfelt  
Chairman, Doctoral Program
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ABSTRACT

By examining the origin and growth dynamics of two generations of high-tech startups in China’s information technology sectors, this study presents empirical research on how Chinese technology startup companies, despite their lack of many of the basic elements that are usually necessary for a successful enterprise, survived and thrived in a competitive environment. The first-generation firms appeared in the mid- and late 1980s, competing in computer-related areas such as Chinese-language processing software and hardware products, personal computers, and financial software products. The second-generation startups, namely Internet-related companies, emerged in the mid-1990s. The thesis presents case studies, which form the primary evidence for analysis, on major domestic players Legend, Founder, Great Wall, Sohu, Sina, and Netease. A framework was built based on a theoretical distinction between external resources and organizational capabilities. Case studies show that external resources are important, but richer resources do not always guarantee a startup’s success if they fail to help build organizational capabilities. External resources might even become a hurdle in sustaining a competitive edge. The case studies indicate that organizational capabilities that were built during a startup’s development, rather than just richer or “better” external resources alone, make significant contributions to success. Another observation is that in many cases resource constraints trigger startups to search for needed capabilities. Together with external resources and strategic alliances, trial-and-error learning is an effective vehicle to carry out capability-building processes. The unintentional nature of capability building is also discussed.

Thesis Committee: Michael A. Cusumano, Chair, Sloan Management Review Professor of Management
Edward B. Roberts, David Sarnoff Professor of the Management of Technology
Simon Johnson, Assistant Director, MIT Entrepreneurship Center
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CONTENTS

1. Introduction.................................................................................. 9
  1.1 Overview ................................................................................. 9
  1.2 Method .................................................................................. 12
    1.2.1 Research Design ............................................................... 12
    1.2.2 Data Collection ................................................................. 15

2. Literature Review and Conceptual Framework............................... 18
  2.1 Entrepreneurship Research..................................................... 18
    2.1.1 What Is in the Literature? .................................................. 18
    2.1.2 What Is Missing? ............................................................... 30
  2.2 Organizational Capabilities Approach..................................... 33
  2.3 Conceptual Framework ......................................................... 36

3. China’s Computer-Related Startups ............................................ 41
  3.1 Overview: ZhongGuanCun and China’s PC Industry ............... 41
    3.1.1 ZhongGuanCun ................................................................. 41
    3.1.2 China’s PC Industry ......................................................... 49
  3.2 Legend Computer Group Corporation.................................... 55
    3.2.1 Founding Process and Early Development ....................... 57
    3.2.2 Legend PCs’ Targeting Local Needs .................................. 62
    3.2.3 Liu Chunazhi and Mao-Gong-Ji ....................................... 77
    3.2.4 Organizational Evolution and Ownership Structure Change .. 82
    3.2.5 Internet Time ................................................................. 89
  3.3 Peking University Founder Group Company............................ 92
    3.3.1 Early History ................................................................. 94
    3.3.2 Wang Xuan—A Contemporary Bi Sheng ............................ 97
    3.3.3 Founder: A Leading High-Tech Company ......................... 103
    3.3.4 Challenges and Crises ..................................................... 110
    3.3.5 Organization, Ownership Structure, and Top Management Team.. 115
  3.4 China Great Wall Computer Group Corporation...................... 121
    3.4.1 GW0520CH and the Early Founding Process ...................... 122
    3.4.2 Wang Zhi and the Great Wall Model ................................ 127
    3.4.3 Government Support and Further Development ................. 130
    3.4.4 Challenges .................................................................. 139
4. The Second Wave of Chinese High-Tech Startups ........................................ 144

4.1 The Internet Boom ..................................................................................... 144
4.2 Sina.com ................................................................................................. 156
    4.2.1 Wang Zhidong and Stone Rich Sight ............................................... 158
    4.2.2 The Birth of Sina ............................................................................. 162
    4.2.3 Cultivating Capabilities: From www.srsnet to www.sina.com ........... 167
    4.2.4 An International Management Team ............................................... 188
    4.2.5 Venture Capital and IPO ................................................................. 191
4.3 Sohu.com .................................................................................................. 198
    4.3.1 Charles Zhang and Sohu: Founding Process and Development .......... 199
    4.3.2 A Market Educator ......................................................................... 216
    4.3.3 Western Connections, Overseas Venture Capital, and IPO .............. 222
4.4 NetEase.com ............................................................................................. 244
    4.4.1 Ding Lei and the Birth of NetEase .................................................... 245
    4.4.2 Product and Service Development: From A Software Provider to A Popular Portal Site ........................................................................ 248
    4.4.3 Management Team, Overseas Venture Capital, and IPO ................. 259

5. Discussions and Conclusions ...................................................................... 271

5.1 Findings ...................................................................................................... 271
5.2 Implications and Future Research ............................................................. 287

References ...................................................................................................... 292
Table 3.4.6 Great Wall’s Main Products and Services.............................................138
Table 4.1.1 Chinese Internet Users (in tens of thousand) ....................................144
Table 4.1.2 The Second-Generation Startups.......................................................147
Table 4.1.3 The Development of Bandwidth of Leased International Connections in China (Megabytes) .........................................................148
Table 4.1.4 China’s Monthly Internet Subscription Cost (in RMB ¥) ..................148
Table 4.1.5 Most Recommended Web Sites by Chinese Internet Users.................149
Table 4.1.6 Internet Development in China.........................................................151
Table 4.1.7 E-Commerce Spending (millions of US$) ........................................152
Table 4.2.1 Sina’s Revenue and Loss (in US$ million; Year ended June 30) ........157
Table 4.2.2 Growth in Numbers of Employee of Beijing Sina............................173
Table 4.2.3 Sina’s Average Daily Page Views (10 thousand per day) .................177
Table 4.2.4 Sina’s (SRS) Fundraising .................................................................182
Table 4.2.5 Primary Information Gathered Online in China.................................191
Table 4.3.1 Page Viewers per Day and Accumulated Registered User Numbers (in millions) .............................................................................199
Table 4.3.2 Numbers of Websites (Worldwide) in Early Years of the Internet ....201
Table 4.3.3 Sohu’s Expenses in Sales, Marketing, and Advertising (in US$ thousand) .........................................................................................219
Table 4.3.4 Chinese-Language (GB) Online Search Engine Development ........211
Table 4.3.5 Sohu’s Directors and Executive Officers (as of July 2000) ............224
Table 4.3.6 IPO on Nasdaq .....................................................................................232
Table 4.3.7 Sohu’s Fundraising (pre-IPO) ..............................................................237
Table 4.3.8 Numbers of Employees at Sohu .........................................................243
Table 4.3.9 Sohu’s Revenue and Losses (in US$ millions) ...................................243
Table 4.4.1 The Most Popular Web Sites in China (as of September 2000) ........245
Table 4.4.2 Average Daily Page Views and Other Statistics (in millions) ........245
Table 4.4.3 Registered User Numbers of Netease’s Free Email System at 163.net ...253
Table 4.4.4 Business Development at Sina, Sohu, and Netease .........................256
Table 4.4.5 Netease’s Expansion ........................................................................258
Table 4.4.6 Netease’s Financial Results (for the year ended December 31) .......258
Table 4.4.7 A Top Management Team at Netease (as of June 2000) ................263
Table 4.4.8 Netease’s Principle Shareholders .....................................................266
Table 5.1.1 Major Findings ....................................................................................272
Table 5.1.2 Sales Revenues of Legend, Founder, and Great Wall (in RMB ¥ millions) .................................................................278
1. INTRODUCTION

1.1 Overview

By examining the origin and growth dynamics of two generations of high-tech startups in China's information technology sectors, this study presents empirical exploratory research on how Chinese technology startup companies, despite their lack of many basic elements that are usually necessary for a successful enterprise, survived and even thrived in a competitive environment. The first-generation firms emerged in the mid- and late 1980s, competing in computer-related areas such as Chinese-language processing software and hardware products, personal computers, and financial software products. The second-generation startups, namely Internet-related companies, mushroomed in the mid-1990s. The thesis presents case studies, which form the primary evidence for analysis, on major domestic players Legend, Founder, Great Wall, Sohu, Sina, and Netease.

Entrepreneurship research has studied many important aspects of building a successful high-tech company; however, there has been little systematic work on how a high-tech startup generates resources and capabilities in the face of tight constraints. At the same time, there has been little research on Chinese high-tech entrepreneurship.

Taking off from related lines of literature, this thesis introduces a framework based on the resource-based view and the organizational capabilities approach to investigate what made two generations of companies do well or less well. Working definitions distinguish externally obtained resources and internally built capabilities. Resources and organizational capabilities
are tracked through “task-based” investigations. Further, the framework assumes that there are various origins of organizational capabilities.

One finding is that resources are important, but richer resources do not always guarantee a startup’s success if they fail to help build organizational capabilities. Further, external resources might even become a hurdle to a company’s further development of its competitive edge. For instance, significant government support, to a great extent, helped Founder and Great Wall launch their businesses and achieve early success. However, valuable resources such as financial capital and reputation did not prevent those companies from losing their leading position when competition began to intensify. Westernized, experienced managers, initially presented as great resources for second-generation startups, did not automatically form the foundation for success. Empirical evidence indicates that organizational capabilities that were developed during a startup’s development, rather than just richer or “better” external resources alone, contribute to a company’s sustainable success. For example, Legend’s ability to understand local needs, together with the company’s marketing and management skills, made it the leader in China’s PC market. Sina and Netease’s ability to create sticky customer bases by providing reliable services such as online forums and the virtual community, and Sohu’s ability to introduce and market the newest business models developed in the United States, created the “Internet big three” in China. The case studies also demonstrate that external resources, such as business connections provided by seed organizations or venture capitalists (VCs), and entrepreneurs’ experiences accumulated through previous practices, may help a company build necessary capabilities. However, in many cases, strategic alliances and trial-and-error learning through market practice seem to
contribute the most to a startup’s capability-building processes. In particular, trial-and-error learning is found to be widely adopted because of resource constraints.

Another important observation is that, lacking prior resources and capabilities could trigger and motivate startups to search actively and creatively for resources and capabilities. Legend, which had the least initial resources, adopted the most aggressive strategy in order to acquire abilities such as internal managerial and marketing skills. Sina (SRS), which was not able to hire professional writers, cultivated its ability of managing “net friends” and of creating rich and attractive online content.

I also found that, in many cases, capability-building processes and competitive advantages could be unintended consequences. I demonstrate that successful companies are good at recognizing such outcomes quickly and deliberately facilitating further development.

The dissertation is organized as follows. The introduction chapter also describes the research motivation, findings, setting, and method. In Chapter Two, based on a review of related lines of literature, I present a framework to explore how Chinese high-tech startups emerged, survived, and performed. Chapters Three and Four comprise six case studies on Chinese high-tech startups from two different generations. Chapter Five presents conclusions and implications of the study, and discusses future research directions.
1.2 Method

1.2.1 Research Design

This study is based on a multiple case study design. I selected three high-tech startups from each generation as the objects of an in-depth investigation. The selection criteria identify the most successful companies in each generation. Existing studies have explored various measures of a new venture’s performance, such as sales growth or employee growth, subjective assessments of firm performance by managers, and a startup’s market value.¹ In this study, “the most successful companies” refers to those companies that have significant market share and sales revenues (for the first-generation companies, see Table 1.2.1), those that have continuously ranked at the top based on survey studies, and those listed on the Nasdaq stock exchange (for the second-generation companies, see Table 1.2.2).

Although companies selected here are in general seen as “successful,” they have had both successful and unsuccessful aspects to their operations. For instance, the establishment of the first famous local brand by the PC manufacturer Great Wall was regarded as a great success; however, the company’s subsequent loss of the market leader position was considered to be a failure.

Most material in the study covers a period from a company’s founding date to the end of 2000; some evidence, though, is from very recent developments. Previous researchers consider only business ventures eight years old or less to be startups (e.g., McDougall et al. 1994). Samples for this study were not selected based on such age limitations—first-generation companies studied here have about 15 years’ history. Van de Ven, Venkataraman, Polley, and Garud,
(1989) argues that a technology venture follows steps of initial product development, startup, initial growth, and sustained growth. Thus, one of reasons for selecting such samples is that this study considers not only the founding stages, but also investigates the initial and sustained growth of Chinese high-tech ventures.

\footnote{See Deeds et al. (1998) for a review of performance measurement.}
Table 1.2.1 Research Setting (1): First-Generation High-Tech Startups (as of 2000)

<table>
<thead>
<tr>
<th>Companies</th>
<th>PC Market Share in China (%)</th>
<th>Annual Sales Revenues (in RMB ¥ million)</th>
<th>Size (No. of employees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legend</td>
<td>28.9</td>
<td>28,400</td>
<td>9,000</td>
</tr>
<tr>
<td>Founder</td>
<td>9.2</td>
<td>10,061</td>
<td>6,000</td>
</tr>
<tr>
<td>Great Wall</td>
<td>4.6</td>
<td>16,000</td>
<td>11,000</td>
</tr>
</tbody>
</table>

Source: IDC; company data

Given that the research setting has a very fluid nature, the case approach allows for a longitudinal assessment of environmental changes and corresponding changes in companies. Firms under investigation provided access to documents from the very beginning of this research, therefore the feasibility of the case study approach was assured. Moreover, “a young field such as entrepreneurship...would benefit from the use of more in-depth longitudinal studies” (Huse & Landstrom 1997: 9). Therefore, the chosen methodologies should deepen our understanding of China’s high-tech companies.

Table 1.2.2 Research Setting (2): Second-Generation High-Tech Startups (as of 2000)

<table>
<thead>
<tr>
<th>Companies</th>
<th>IPO Date</th>
<th>Annual Sales Revenues(^2) (In US$millions)</th>
<th>Size (No. of employees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sina</td>
<td>April 2000</td>
<td>14.2 (year ended June 30)</td>
<td>386 (Beijing Sina)</td>
</tr>
<tr>
<td></td>
<td>Nasdaq: SINA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sohu</td>
<td>July 2000</td>
<td>6.0</td>
<td>524</td>
</tr>
<tr>
<td></td>
<td>Nasdaq: SOHU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Netease</td>
<td>June 2000</td>
<td>3.98</td>
<td>240</td>
</tr>
<tr>
<td></td>
<td>Nasdaq: NTES</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Company data

\(^2\) Compared to their American counterparts, Chinese Internet companies were small. For example, in the same period, Yahoo!’s sales revenues were US$295.5 million.
Why China? Why Chinese high-tech startups? First, it is a significant research setting. China has a huge market with a very high interest in high-tech sectors, which translates into particularly strong information technology potential carried by enthusiastic customers and entrepreneurs. China became the second largest IT market in Asia Pacific (excluding Japan) in 1998, with total expenditures of $9.243 billion. And the future looks even brighter. More specifically, roughly 44% of IT spending in China is on personal computers.\(^3\) At the same time, the fierce competition between domestic and multinational firms also makes it an interesting setting. Moreover, very much different from other fields, the Chinese high-tech sectors have some aspects that are comparable to their Western counterparts. For example, information technology industries are the most globalized sectors, and the most active players in these sectors are private firms or privately managed companies. Second, China is a special ground for entrepreneurship study. Existing studies reveal that for many Chinese, self-employment is at a premium. “Wherever and whenever the government has little restrictions on free enterprises, we have seen pockets of entrepreneurship develop” (Chang & MacMillan, 1991, p. 375). The economic reform that began in the late 1970s released abundant entrepreneurial activities in China. High-tech entrepreneurship emerged in the middle of the 1980s and soon became a dominant force in the market. Third, I have a special understanding of the Chinese situation and gained company access from the beginning of my research.

1.2.2 Data Collection

I took nine-and-a-half months to complete the field investigation on six companies. The first field trip (July 1997) helped me obtain background knowledge of first-generation startups.

\(^3\) China IT Market Overview, 1999 (IDC #W18946, April, 1999).
My second field trip (June 1998—August 1998) focused on the origin and development of Legend and Founder. The third field trip (June 1999—August 1999) focused on second-generation companies such as Sohu, Sina, Netease, and other players in the market, while also providing further investigation on first-generation companies such as Legend, Founder, and Great Wall. The fourth field trip (June 2000—September 2000) served to collect additional archival data, and to conduct repeated interviews on firms from both generations. In 2001, I conducted additional phone interviews for complementary data collection.

I conducted more than 100 personal, face-to-face interviews with top executives, middle managers, technicians, shop floor operatives, key people who had left companies, government officials, and industry observers. These interviews involved both semi-structured questionnaires and open-ended exchanges. Interviews typically lasted from one to two hours; I interviewed some key persons twice or more. Whenever necessary, I arranged follow-up interviews to verify facts and to validate my perceptions and interpretations. I took notes and recorded most interviews.  

To increase reliability and validity, I relied mainly on two methods for data collection: interviews and archival documents from different resources (Kanter 1977). I visited companies under my investigation multiple times. In addition, I collected documentary and statistical materials (memos, meeting agendas and notes, reports, correspondence) at each site, as well as copies of annual reports, sales brochures, newspaper/journal articles, and the like. Furthermore, to gain "intuition" about China’s high-tech startups, I spent a couple of months

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Footnotes:

4 Not including follow-up interviews.
5 Some of the tape-recorded interviews have been transcribed in full in English.
during my field research period as a consultant for Chinalabs, a Beijing-based Internet consulting startup.
2. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

In this chapter, I first review major streams of studies on entrepreneurship, which provide a big-picture view of what we know well and what we need to conduct further exploration for the present study. I then employ the organizational capabilities approach to identify key research questions. In the chapter's final section, I construct a framework for placing the empirical material into perspective.

2.1 Entrepreneurship Research

Almost seventy years ago, Schumpeter (1934) had already claimed that entrepreneurship was an important force driving changes in capitalist society. It is only recently, however, that research into entrepreneurship has moved into the mainstream of management study. Today, the tremendous amount of entrepreneurial activity resulting from the "New Economy" has spurred entrepreneurship research, particularly the study of high-tech entrepreneurship, to become "one of the fields in management that has evolved the most during the last few years" (Huse & Landstrom 1997:3).

2.1.1 What Is in the Literature?

"Entrepreneurship" has been defined in many ways: the entrepreneurial firm (Carland, Hoy, Boulton, and Carland, 1984); creating and developing new organizations (Gartner 1985, 1988; Katz & Gartner 1988, Katz 1993); a process of pursuing opportunities (Stevenson & Jarillo 1990) or wealth (Ronstadt 1984); entrepreneurial activities (Danhoff 1949; Bird 1989); the entrepreneurial phenomenon (Brockhaus, 1987); entrepreneurial behavior (Bird, 1989); and
the entrepreneurial career (Dyer, 1992). Many authors agree that entrepreneurship research includes small businesses, and corporate entrepreneurship in larger, established organizations (see Huse & Landstrom 1997). For example, Carter and her co-authors notice that a great portion of entrepreneurship studies on strategy “examine small, not young, companies” (Carter et al. 1994). Since many established firms respond to environmental changes by supporting internal entrepreneurial activities (Kanter 1988), many studies also target entrepreneurship within existing companies (Amit et al. 1993).

Entrepreneurship research has further examined entrepreneurial personal characteristics and backgrounds, factors that affect venture creation, and venture success/failure and growth. In studying educational software startups, Van de Ven, Hudson, and Schroeder (1984) propose three dimensions: entrepreneurs’ background characteristics and psychological attributes (entrepreneurial dimension); organizational activities undertaken before and after a new venture’s founding (organizational dimension); and resources needed to develop an industry (ecological dimension). Similarly, Gartner (1985) describes the entrepreneurship literature by presenting a framework that integrates four major categories: individual, process, environment, and organization (see Figure 2.1.1.).

Entrepreneurs

Many entrepreneurship studies, particularly earlier studies, focus on the individual dimension by examining personal characteristics and backgrounds that distinguish successful from unsuccessful entrepreneurs. Researchers look at how characteristics of founders and key employees affect venture success (DeCarlo & Lyons 1979; McDougall et al. 1994; Murray 1996; Roberts and Senturia 1996; Chaganti et al. 1995). Other studies have focused on
entrepreneurs’ family background (e.g., Roberts & Wainer 1968; Susbauer 1972; Cooper et al. 1987; Duchesneau and Gartner 1988), educational background (e.g., Cooper and Gascon 1992; Stuart and Abetti 1990; Robert 1969), previous work experiences (e.g., Cooper 1970; Lamont 1972; Susbauer 1972; Stuart and Abetti 1990), age (e.g., Roberts & Wainer 1968; Sandberg & Hofer, 1987), and other personal attributes. Some authors criticize this line of research, since studies on entrepreneurs’ demographics, experience, and psychological background usually fail to provide satisfactory results demonstrating strong effects on a startup’s performance (Begley & Boyd, 1986; Cooper & Gascon, 1992). Nonetheless, studying entrepreneurs themselves is seen as one of the richest traditions in entrepreneurship research. Yet, over a long period, the focus on individual entrepreneurs has led to a situation where researchers “have neglected to comment on or even communicate certain characteristics of the organizations on which they (entrepreneurship studies) focused” (Gartner 1985: 700).
Figure 2.1.1 Gartner's Framework: Variables in New Venture Creation

INDIVIDUAL (S)
- Need for achievement
- Locus of control
- Risk taking propensity
- Job satisfaction
- Previous work experience
- Entrepreneurial parents
- Age
- Education

ENVIRONMENT
- Venture capital availability
- Presence of experienced entrepreneurs
- Technically skilled labor force
- Accessibility of suppliers
- Accessibility of customers or new markets
- Governmental influences
- Proximity of universities
- Availability of land or facilities
- Accessibility of transportation
- Attitude of the area population
- Availability of supporting services
- Living conditions
- High occupational and industrial differentiation
- High industrial base
- Larger size urban areas
- Availability of financial resources
- Barriers to entry
- Rivalry among existing competition
- Pressure from substitute products
- Bargaining power of buyers
- Bargaining power of suppliers

ORGANIZATION
- Overall cost leadership
- Differentiation
- Focus
- The new product or service
- Parallel competition
- Franchise entry
- Geographical transfer
- Supply shortage
- Tapping unutilized resources
- Customer contract
- Becoming a second source
- Joint ventures
- Licensing
- Market relinquishment
- Sell of division
- Favored purchasing by government
- Governmental rule changes

PROCESS
- The entrepreneur locates a business opportunity
- The entrepreneur accumulates resources
- The entrepreneur markets products and services
- The entrepreneur produces the product
- The entrepreneur builds an organization
- The entrepreneur responds to government and society

Source: Gartner (1985: 702)
Venture Strategy, Success and Failure

Following Schumpeter's seminal work (Schumpeter 1937), which scrutinizes the rationale of entrepreneurial activities in which arbitrage opportunities are pursued, researchers have sought to study entrepreneurial opportunities (e.g., Maidique 1980; Vesper 1980; Casson 1982). Casson (1982) defines such opportunities as a chance to gain greater profit than cost of production of goods, services, raw material, and organizing methods. Shane and Venkataraman (2000) call attention to the recognition of entrepreneurial opportunities by reviewing theories posited by economists, sociologists, and organizational theorists (e.g., Schumpeter 1934; Kirzner 1973; Hannan & Freeman 1984; Casson 1982). They propose that entrepreneurship research should answer three main questions around the key concept of entrepreneurial opportunities: what entrepreneurial opportunities are; who, when, and by whom they are discovered; and how these opportunities are exploited. Zahra and Dess (2001) argue that the outcomes of entrepreneurship opportunity exploitation should be added as the fourth area of entrepreneurship research.

In response, more and more researchers began to focus on organizational processes and factors such as the financial base and strategy (how entrepreneurial opportunities are exploited), while others have studied a closely related line, that is, success and failure (the outcomes of entrepreneurship opportunity exploitation). A great number of studies have explored a new venture's financial base from the perspectives both of a young company (e.g., Roberts 1991) and investors (e.g., MacMillan et al. 1985; Ruhnka & Young 1987; Hall & Hoffer 1993). For example, Roberts (1991) identifies various financial sources and examines the role of financial bases in the success of new technology ventures. Hall and Hoffer (1993)
argue that venture capitalists look not only at a technology venture team’s technical strengths, but also consider the ability to create commercial success to be a critical criterion.

There has been increasing interest in the linkage of strategy and venture success. McDougall and Robinson (1990) surveyed 269 CEOs from the information processing industry and revealed eight different “archetypes” of new venture strategy. Studies on venture strategy seek to understand whether startups and small companies follow medium- and large-size firms’ patterns. For example, Sandberg (1986) argues that new ventures should differentiate their strategies from those of established lager companies. Similarly, Roure and Moidique (1986) find that successful ventures target niche markets ignored by established companies. Studying more than 2500 startups across six industries, Carter, Stearns, and Reynolds (1994) find six generic new venture strategies, and conclude that traditional strategy typologies do not apply for new firms.

Studies also suggest that each stage of venture development is associated with a unique set of problems (Robinson & Pearce 1986; Olson 1987; Kazanjian 1988; Kuratko and Hodgetts 1989; Terpstra & Olson 1993). Based on studying products from 77 small North Carolina manufacturing companies, Robinson and Pearce (1986) find that different lifecycle stages of products require changes in a company’s product strategy. Kuratko and Hodgetts (1989) claim that marketing and financial problems characterize the startup stage, while strategic, administrative, and managerial problems characterize the growth stage. Olson (1987) concludes that at the startup stage, problems related to the creation and development of products and services are more important, while management and organization design are more critical at the growth stage. Examining 21 Boston-area technology ventures, Roberts
(1991) argues that companies shift their strategic focus over time from technological advantages toward price/performance and customer services.

In addition to strategy, studies have examined various factors that determine venture success (Sandberg 1986; Sandberg & Hofer 1987; McDougall et al., 1992; Schoonhoven, Eisenhardt, & Lyman, 1990; Eisenhardt & Schoonhoven, 1990). For example, Sandberg (1986) presents a model of new firm performance by suggesting that performance is a function of the entrepreneur, the strategy, and the industry structure. Roberts (1991) examines startup and growth processes, looking at multiple variables such as entrepreneur characteristics and backgrounds, technology and financial bases, and marketing and management-related factors. Porter (1980) associates venture success with industry structure. Chaganti et al. (1995) suggest that the amount of initial capital and motivation of the founder are among the determinants of a startup's success. Duchesneau and Gartner (1988) suggest that initial planning increases the probability of success. Based on interviews with the chief executives of 52 new technical ventures in the New York-New England area, Stuart and Abetti (1990) find that previous entrepreneurial experience is the most significant factor in attracting venture capitalists and increasing the likelihood of success. Stuart, Hoang, and Hybels (1999) conclude that interorganizational affiliations such as a young company's strategic alliance partners, equity investors (the ownership structure), and investment banks are important in pursuing new venture success. Studying technology startups in Europe, Marray (1996) discovers that product characteristics contribute to a new venture's success. Factors such as product characteristics (Jolly, Alahuhta, and Jeannet 1992; Murray 1996; Roberts and Senturia 1996) and forms of market entry (Jolly, Alahuhta, and Jeannet 1992; McDougall,
Shane, and Oviatt 1994; Roberts and Senturia 1996) are also identified as variables associated with success.

Researchers have also examined another “outcome”—business failure. Based on empirical data, Dun and Bradstreet (1987) concludes that there are several major reasons for new venture failure: inadequate market knowledge, poor product performance, ineffective marketing and sales efforts, inadequate awareness of competitive pressures, rapid product obsolescence, poor timing for the start of a business venture, and financial difficulties. Polling the founders of 10 failed high-technology companies, Bruno, Leidecker, and Harder (1987) list the three major problems that keep young startups from succeeding: product/market problems, financial difficulties, and managerial problems. Through a survey study of the 100 fastest-growing public companies, Anderson and Dunkleberg (1987) identify that management and employee development are the greatest challenges for a startup seeking to maintain growth. Nevertheless, failure is not necessarily a negative outcome. Some authors find new venture failure to be a means by which to accumulate human, social, and intellectual capital for future ventures (e.g., McGrath 1999; Grenadier & Weiss 1997).

Related to studies on venture success and failure, variables to measure venture performance have been developed (see Deeds et al. 1998). Some researchers use sales growth or employee growth to measure success (Hoy et al. 1992), while others use earnings per share as performance measures (Murphy et al., 1996). For public companies, it is common to employ the firm’s market value or stock price to indicate a new venture’s performance (Ritter, 1984; Trueman, 1986; Ibbotson & Ritter 1995). Researchers have also adopted subjective
assessments of firm performance by the owner or manager to measure a company’s performance (Deeds et al. 1998).

Studies in entrepreneurship research also consider what leads to venture creation. For example, the so-called ‘rates approach’ investigates the social, economic, and political conditions that influence the variance in organizational founding (Aldrich & Wiedenmayer 1991). Examining startups in three industries in 70 urban metropolitan areas, Penning (1982) discovers that some dimensions of the urban environments are most critical for predicting the creation of new organizations; these include occupational and industrial differentiation, the percentage of immigrants, the size of the relevant industry, the size of the urban area, and the presence of financial resources. Based on a review of 17 entrepreneurship studies, Bruno and Tyebjee (1982) conclude that 12 factors stimulate entrepreneurship, including venture capital availability, presence of experienced entrepreneurs, technically skilled labor force, accessibility of suppliers and customers, and government influence. Cooper (1986) suggests that six environmental variables, including economic conditions, access to venture capital, examples of entrepreneurial action, interim consulting opportunities, availability of support personnel and services, and access to customers, have the greatest effect on the origin of startups.

High-Technology Focus

As the field developed, more and more studies began to link types of companies across dimensions of venture creation and development. In particular, high-tech startups have become an important subject of research. Some authors use the Standard Industrial Classification (SIC) codes to identify high-tech ventures from low-tech and no-tech firms.
Others use their own definitions of "high-tech." For example, Reeble (1990) defines a high-technology industry as one that engages in activities with high rates of change, high levels of research and development expenditures, and innovative products. Similarly, Metcalf's (1999) definition of a technology industry emphasizes that innovation in science and technology should be the base of business activities. Reviewing 24 academic works and opinions from more than 100 top-level managers in 60 high-tech organizations in Israel and the United Kingdom, Baruch (1997) establishes criteria to identify high-tech firms: substantial R&D expenditures, cutting-edge technological innovation, and a high percentage of employees with university degrees.

Studies of high-tech startups cover initial technology base, strategy, and growth. For example, Roberts (1991) identifies variables that influence the degree of technology transfer from source organization to new ventures. Meyer and Roberts (1986) investigate different product strategies in 10 small technology-based companies and find that companies that are successful in product innovation usually try to leverage existing technologies rather than pursuing technological diversity in their product lines. Based on data collected from the senior executives of 57 small manufacturing companies, Covin, Slevin, and Covin (1990) identify business strategies often used by small high-tech companies, such as an emphasis on advertising, product-related issues, formal planning activities, customer service/support, external financing, premium pricing strategies, and entrepreneurial strategic postures. Studying more than 800 entrepreneurs, Stearns and Allen (2000) examine different forms of technology that a high-tech startup is likely to pursue, and show how high-tech startups differ from other firms in the startup phase. Kelley and Rice (2000) analyze 67 new computer and telecommunications firms and find that firms with more extensive technology- and product-
based knowledge are more likely to form alliances than are those with less extensive knowledge. The implications for these findings are that alliances are more attractive to firms with a foundation of knowledge that can be leveraged, and that firms with this knowledge have something of value to attract alliance partners.

**Entrepreneurship in China**

More and more studies have been conducted on entrepreneurship in transition economies. Most studies focus on regions such as the former Soviet Union and Eastern Europe. Although China has been capturing attention of Western scholars, most China-related research focuses on general management issues in state-owned companies and Sino-foreign joint ventures (e.g., Jackson 1992, Laksonen 1988, Shenkar 1991; Warner 1987; Child 1994). There is very limited research on Chinese entrepreneurship.

Recently, some efforts have been undertaken in this area (e.g., Tan 1996; Tsang 1996; Roberts 1997; Lu 1997, 2000). For example, Tan (1996) finds that Chinese private enterprises, just like their counterparts in the West, respond rapidly and proactively to market opportunities even under the uncertain conditions that characterize China’s current mixed economy. Tsang (1996) examines the legitimate status, in the political sense, of private business in China. Roberts (1997) investigates the political impact of the emergence of private entrepreneurs in China in the 1980s and 1990s, arguing that the Chinese private startups were more competitive than existing state-owned firms in the newly emerged market economy by liberalizing their businesses from political control. However, in general, there has been little work on this topic and, in particular, very limited research has been conducted
in the high-tech sector. Lu’s study of China’s computer firms (Lu 1997, 2000) is a notable exception.

Lu tracked the development of four important players in China’s IT sectors—namely Stone, Legend Group, Founder, and Great Wall—from their founding. He argued that technologies accumulated in state-owned sectors, and a unique organizational foundation of enterprise governance, or so-called “non-governmentalization” (Lu 2000: 190), contributed to the success of these firms in competing with foreign multinationals. These two factors, “technology capabilities”\(^6\) and enterprise governance, together made a “top-down” model of technological learning possible for these Chinese firms. Companies started with product design or redesign and then went forward or backward to transfer technologies at other levels, as opposed to starting from the lowest rung of the technological ladder.

Lu’s study shares some common characteristics with my own investigation. Both studies target major domestic players in information technology sectors, such as Legend, Founder, and Great Wall, and relate the development processes of Chinese high-tech startups. However, my interest is in exploring the causes of both success and failure in different aspects of the companies, as well the resources and capabilities behind such consequences. In addition, this thesis compares the first-generation firms with companies from the second generation.

Some Chinese authors have also shown interest in local IT startups. For example, since early 1990, various newspaper articles in China have focused on the development of local high-tech startups, including companies studied in this dissertation, and a group of journalists have

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\(^6\) In my investigation, I found that at their founding stage, these companies obtained “technologies,” rather than “technological capabilities,” from the state sectors.
published a series of reports based on their newspaper articles (e.g., Liu & Zhang 1998; Liu & Li 2000). These publications widely spread stories of ZhongGuanCun technology entrepreneurs and their startups. However, the articles and books were written for the popular press, with no attempt to provide an intellectual understanding of the issues of interest presented in this thesis, and hence those publications do not constitute scholarly literature. Nevertheless, to some extent, the evidentiary basis of this dissertation overlaps with the work of these journalists,\(^8\) while personal interviews I conducted, along with company data, contribute a large portion of the present case studies.

### 2.1.2 What Is Missing?

To conduct this particular study on Chinese high-tech startups, several issues that are not sufficiently examined in existing studies need to be addressed. Researchers agree that *entrepreneurship* is about the creation of a newly established organization for the purpose of economic gain or growth under conditions of constrained resources, risks, and uncertainties. It has been argued that the environmental and organizational resources and capabilities of a startup are critical to a new firm’s development (e.g., Stinchcombe 1965; Aldrich & Auster 1986; Vesper 1980; Deeds *et al.*1998; Stuart *et al.*1999). For example, Aldrich & Auster (1986) find that one reason for the high disbandment rate of new ventures is the lack of financial and other resources. Vesper (1980) notes that technical and business know-how are necessary for venture creation. Deeds (1998) suggests that the development of firm-specific capabilities is an important aspect of developing a successful startup. However, studies show that new ventures usually lack resources at their founding and development stages. For

\(^7\) Most earliest China’s high-tech startups originated in ZhongGuanCun area of Beijing.
example, Burill and Lee (1992) report that many new ventures in the biotechnology industry are under serious financial constraints since they are years away from any significant revenue stream and face tremendous accounting losses.

Accordingly, researchers have done some empirical work on the acquisition of needed resources. For example, Raff (2000) studied how founders’ visions influence the emergence of different sets of capabilities in two different U.S. book superstore chains. Murray (1996) emphasizes the importance of the inventory of relevant skills and experience that founder managers contribute to the organization. Starr and MacMillan (1990) suggest that “social contracting strategies” are critical to resource-acquiring processes. Bygrave & Timmons (1992) conclude that startups funded by high-status venture capital firms have a greater chance to affiliate with prestigious investment banks, which helps young companies with their IPOs. Similarly, Stuart, Hoang, and Hybels (1999) find that biotech startups are able to attract needed resources because of the positive impact their interorganizational relationships have on the perceived value of the new ventures; these interorganizational relationships include recognition and organizational associates and technical and marketing capabilities, and are accrued through their prominent exchange partners such as alliance partners, equity investors, and investment banks. Conducting a survey study of 52 entrepreneurs, Hansen (2000) examines how entrepreneurs change their initial stock of social capital as they progress towards startup.

Compared with the number of studies that focus on financial resources, far fewer investigations have been conducted on other types of resources and capabilities. Recently,

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*See footnotes in individual cases.*
there have been some attempts to use a resource-based view of the firm to study new ventures. For example, studying 89 biotechnology companies, Deeds, DeCarolis, and Coombs (1998) seek to measure the “wealth creation” of new ventures, which is seen as a function of firm-specific capabilities. Neck, Welbourne, and Meyer (2000) attempt to link organizational knowledge and the growth of new firms in their study of 68 high-tech IPO firms. However, there are far fewer studies that apply the organizational capabilities approach to entrepreneurship research. In general, despite efforts such as those described above, there has been little systematic work on how new ventures cope with tight resource and capability constraints, which is an important topic for research.

At the same time, although researchers have done an enormous amount work in entrepreneurship research, the existing literature does not fully help us to see how theories developed in the West can be applied in the Chinese context. Knight (1921) noted that entrepreneurs had to take great risks because of self-financing. Schumpeter (1934, 1950), on the other hand, argued that capitalists bear the risk for the entrepreneur who tries to pursue arbitrage opportunities. In the context of this study (particularly first-generation companies), the assumptions at the base of that argument did not exist: few individuals had sufficient personal savings to build a company, and there was no venture capital available in the market. Further, Chinese high-tech startups did not emerge within an environment containing the key factors (see Figure 2.1.1.) identified by Bruno and Tyebjee (1982) and Gartner (1985). Most of the founding teams had no prior business experience, a critical factor for venture development that has been repeatedly proven by Western scholars. Moreover, many Chinese high-tech startups, particularly those that emerged in the first generation of technology firms
in the post-Mao era, did not seem to be motivated merely by so-called “entrepreneurial opportunities.”

Another issue in the literature is that most entrepreneurship research employs quantitative approaches; notably, there are a few exceptions, such as Roberts (1991), which combines qualitative studies and statistical analysis to study technology ventures, and Murray (1996), which employs six case studies to investigate the relationship between technology-based venture success and the personal attributes of key founder managers. Through a comparison study of five European and U.S. entrepreneurship journals, Landstorm and Huse (1996) found that the majority of U.S. researchers use surveys based on data collected through questionnaires. However, I believe that qualitative methods, such as in-depth longitudinal case studies, are required if one is to gain deeper understandings of how startups operate.

2.2 Organizational Capabilities

The organizational capabilities approach falls under the broad paradigm of the resource-based view of the firm. The resource-based view is rooted in both Penrose’s work, which emphasizes the internal limits to growth, and the tradition of business policy (Penrose 1959; Andrews 1971). Penrose claimed that “the fundamental limit to the productive opportunity of the firm cannot be found in external supply and demand conditions; we must look into the firm itself” (Penrose 1959: 44). Unlike traditional industrial organization economics, which relies heavily on the analysis of the competitive environment, the resource-based view focuses on the analysis of various resources possessed by the firm. For example, traditional industrial organization economics attributes a firm’s competitive advantage to its supply of a

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9 See Evans & Jovanovic (1989) for a discussion of the dispute between Knight and Shumpeter.
uniquely configured product or service (Porter, 1985). However, the resource-based view establishes that this position of competitive advantage will only be temporary if others can imitate the unique features of the product or service (Barney, 1991; Peteraf, 1993). Accordingly, this line of research argues that the resource bundles and capabilities underlying production are heterogeneous across firms, because many resources are firm specific, not perfectly mobile or imitable; and that firms are continuously heterogeneous in terms of their resource base (e.g., Barney 1991; Peteraf 1993). Sustained firm resource heterogeneity thus becomes a possible source of competitive advantage, which then leads to economic rents, or above-normal returns.

Since valuable firm resources are usually scarce, imperfectly imitable, and lacking direct substitutes (Barney 1991; Peteraf 1993), the trading and accumulation of resources become a strategic necessity. When efficient market exchange of resources is possible, firms are more likely to continue alone (Eisenhardt & Schoonhoven 1996) and rely on the market. However, since certain resources are not perfectly tradable because they are either bundled with other resources or embedded in organizations (Chi 1994), mergers, acquisitions, and strategic alliances are variously employed.

Scholars have examined sustainable differences in firm profitability (Peteraf 1993), diversification strategy (Chatterjee & Wernerfelt 1991), and performance of mergers and acquisitions (Harrison, Hitt, Hoskisson, and Ireland 1991) through the resource-based view and the organizational capabilities approach. Global strategy, technology strategy, and strategic regulation have also been studied by applying the organizational capabilities approach (Collis 1991, Leonard-Barton 1992, Maijoor & Van Witteloostuijin 1996). Many
relatively recent studies have also looked at the rationale, formation, structure, and performance of strategic alliances based on the resource-based view and the organizational capabilities approach (e.g., Blodgett 1991; Eisenhardt & Schoonhoven 1996; Kogut 1988; Mowery, Oxley, & Silverman 1998).

The literature suggests that disparity of capabilities is what differentiates firms’ performance (Barney 1991; Peteraf 1993; Wernerfelt 1984). However, over a long period, studies had focused on “key features of capabilities” and “what capabilities can do,” without inquiring, “where capabilities are from.” In many cases, capabilities were treated as preexistent. There had not been sufficient understanding of the origin of a certain set of capabilities, except for in a few studies, such as Cusumano’s investigation of Toyota and Nissan’s emergence and development (Cusumano, 1985). Very recently, more and more researchers have begun to target this topic.10 For example, based on case studies of three Japanese electronics companies, Helfat and Raubitschek (2000) attempt to build a “product sequencing” model to track how knowledge, capabilities, activities, and products co-evolve over time. Recent studies have identified different modes of capability building. Some suggest that related experiences lay a foundation for a company’s current capabilities. For example, Klepper and Simons (2000) find that dominant players in the U.S. TV receiver industry were those radio firms that were able to leverage their experiences in radio production, R&D, and distribution. Karim & Michell (2000) suggest acquisition as a mode to obtain and change capabilities of both acquiring and acquired companies. Other researchers have established that founders’

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10 For example, the Strategic Management Journal released a special issue on “The Evolution of Firm Capabilities” in 2000 (Volume 21).
experiences and their individual characteristics play important roles in shaping a firm's capabilities (e.g., Holbrook et al. 2000; Raff 2000).

2.3 Conceptual Framework

There are some ambiguities existing in the line of literature above. Penrose (1959) defines resources as “bundles of potential services” obtained from factor markets as inputs for organizational processes, to which managers add value by adapting them to idiosyncratic firm characteristics. This definition implies that resources and the value-adding abilities are different things. Andrews (1971: 100) made a further distinction between resources and capabilities by suggesting that money and people are “the principal resources found in any company,” and by defining organizational capabilities as the “demonstrated and potential ability to accomplish, against the opposition of circumstance or competition, whatever [the firm] sets out to do.” However, as the field has developed, some researchers have suggested that capabilities or resources are what enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness (Barney 1991; Wernerfelt 1984). This not only obscured the boundary between resources and capabilities, but also led to difficulties in observing resources and capabilities.

By contrast, I suggest that our typology should avoid a methodological “tight link” between all possible resources/capabilities and final organizational performance. We should make it possible to measure capabilities within the bounded domain of organizational activity. Henderson & Cockburn (1994) address one such domain by looking at the integrative and component capabilities that explain research productivity (rather than final competitive advantage) in pharmaceutical firms. Similarly, Eisenhardt & Martin (2000) delve into
dynamic capabilities associated with product innovation and the formation of alliances and acquisitions.

To understand capabilities further, we need first to construct working definitions of resources and capabilities. Existing studies indicate that resources include physical, human, and organizational assets, and abilities or competencies (e.g., Eisenhardt and Martin 2000). Following the majority of researchers, my view is that *resources are inputs to organizational processes*, while *organizational capabilities are those abilities that help an organization complete certain tasks*. Tasks could be the development of key products or services, such as Netease Chinese-English language free email system; they could also refer to specific activities such as conducting Legend's price war. Resources are needed to fulfill tasks of a particular type. For example, excellent engineers are needed to write the code for an email system. A successful market campaign requires money. Borrowing Winter's metaphor (2000: 983), I view a capability like the human nervous system, working together with bones and muscles (in this case, capital, human, and other resources) to fulfill a task.

In the organizational learning literature, Argyris and Schon (1978) suggest that single-loop and double-loop learning firms can improve performance only marginally with static capabilities, and that they need dynamic capabilities to effect more fundamental transformations. Many authors agree that organizational capabilities fall into these two major categories of *static* and *dynamic* (e.g., Collis 1994; Amit and Shoemaker 1993; Grant 1991; Stalk et al. 1992). Static organizational capabilities account for a certain degree of efficiency or effectiveness in transforming inputs into outputs, and are often located within functional

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11 Thanks to Andreas Gast for his view that inspired ideas and definitions.
areas or confined to particular business processes. In contrast, dynamic capabilities represent
the innovative, entrepreneurial potential to transform static capabilities or create new ones
(Teece et al. 1997). As Collis has pointed out, there is room for even more levels of meta-
capabilities.

Obviously, the above classification does "lead to a problem of infinite regress in the
prediction of, and explanation for, sustainable competitive advantage" (Collis 1994: 144). To
make resources and capabilities observable, I again suggest that our typology should avoid a
methodological "tight link" between all possible resources and final organizational
performance. We should make it possible to measure capabilities within the bounded domain
of organizational activity. At the same time, to avoid the conceptual ambiguity, this
dissertation does not discuss what counts as dynamic capabilities, which implies that learning
how to accomplish a task may lead to capabilities for learning other special skills.

Studies classify necessary resources as those that are property- and knowledge-based.
Property-based resources are financial, physical, human, and technological (patent and
copyright) property, while knowledge-based resources consist of technological skills,
managerial skills, employee skills, and knowledge of the business environment (e.g., Grant
1991; Hofer & Schendal 1978). Similarly, resources in this study include property- and
knowledge-based ones, such as financial resources, physical facilities, humans, technology
(patent and copyright), and market recognition; and knowledge-based resources such as
organizational members’ experiences and business connections.

I group organizational capabilities into six categories: technological, marketing,
manufacturing, internal managerial, and external managerial. Examples include Legend’s
managerial capabilities to run its widespread distribution channels and Sohu’s marketing skills that allow the company to conduct effective marketing campaigns. In particular, I examine external resources rather than resources in general. In this dissertation, external resources are defined as resources that are not generated within the organization. For example, seed money is an external financial resource, and is different from revenues, which are financial resources generated by the company. Organizational capabilities, by definition, are internally built capabilities. This simple taxonomy enables us to identify what external resources contribute to a firm’s performance, and to track internal capabilities from the point of their emergence.

Using these concepts and definitions, I build a framework that allows us to conduct a task-based exploration of the emergence and development of China’s high-tech startups. The framework allows us to answer two important questions. First, what made those firms do well or poorly, or what is the role of resources and capabilities in putting together tasks that led to success or failure? We begin with investigating what made a company perform well or poorly. For instance, we look at what product helped Founder become a top technology company in the typesetting market and what tasks led to the company’s recent fatal loss. As mentioned earlier, entrepreneurship research often concludes that firms have been successful by asking the owner or manager to make an assessment of a company’s performance (see Deeds et al. 1998). I also rely on such “subjective assessments” made by companies’ top managers to decide whether a task is successful. In addition, I also use indicators such as market share and user numbers as measures of performance on a given task. I also examine the resources and capabilities that are needed to made such tasks work (for example, Sohu’s success in
positioning itself in online directory and search engine services might require marketing
skills).

Second, what are the origins of the capabilities? The existing literature helps us to understand
that resources can be components of or inputs to organizational capabilities (e.g., Hart 1995;
Lado et al. 1992). For instance, Hart (1995: 988) argues “capabilities result from bundles of
resources being brought to bear on particular value-added tasks.” We need to explore what
else leads to capability formation.
3. CHINA’S COMPUTER-RELATED STARTUPS\textsuperscript{12}

3.1 Overview: ZhongGuanCun and China’s PC Industry

3.1.1 ZhongGuanCun

ZhongGuangCun area (ZGC), home to most of China’s first-generation high-tech startups, is located in the Haidian district, in the northwest section of Beijing. It is considered to have the country’s most concentrated intellectual and technology resources. In 1999, there were 300,000 students enrolled in its 68 colleges and universities, which include the prestigious Tsinghua University and Peking University.\textsuperscript{13} There are also 213 research institutes, including the Chinese Academy of Sciences and the Chinese Academy of Engineering with more than 100,000 researchers.\textsuperscript{14} During the mid- and late 1980s, ZGC became famous for its information technology startups and its electronic product trading markets. The Chinese refer to the area as the “ZGC Electronics Street,” or “China’s Silicon Valley”. The formation of the ZGC high-tech zone was the result of economic reform policies, as well as technology changes and entrepreneurial efforts, and the district holds a unique position in the development of China’s domestic IT sectors, such as the PC industry.

\textsuperscript{12} Main sources for the case writing include various corporate data, such as Lian Xaing Bao (Legend Newsletter), Lian Xiang Guanlixueyu Cailiao (Legend Management School Materials), Beida Fangzheng Bao (Founder Newsletter), Wang Xuan Wenzhai (Wang Xuan’s Essay), Changchen Ren (Great Wall Newsletter), personal interviews, and assorted newspaper articles and books.

\textsuperscript{13} ZGC Science &Technology Park (ZSP) data.

\textsuperscript{14} ZSP data.
Institutional Background

In the late 1970s, Deng Xiaoping (邓小平) initiated free-market economic reforms and "open-door" policies in order to effect a radical transformation of China's 30-year-old centrally planned economy.\textsuperscript{15} To accelerate the development of this market economy, the government created four special economic zones in the coastal area,\textsuperscript{16} where businesses were allowed to operate in a capitalist fashion. Private enterprises began to boom in these zones and elsewhere. In 1991, the private sector contributed 63% of total tax revenues in China, compared to 37% from state-owned enterprises, a decrease from the more than 90% these enterprises had contributed over the prior ten years. By 1992, the number of privately owned enterprises had reached 139,000, and the number of private-sector employees had reached about 2.32 million, a 26% increase from 1991.\textsuperscript{17}

In 1978, the Third Plenum of the Eleventh Party Congress and the National Science Conference strongly emphasized the role of science and technology in economic reform. A development strategy was formulated; it stressed developing in-house R&D capabilities while introducing overseas technologies, which would allow industries to begin "walking on two legs." Accordingly, the government enacted a series of initiatives aimed at foreign technology transfer, restructuring state-owned research institutions, and nationwide joint R&D projects.

Since the 1950s, China had employed a typical Soviet Union-style system of central planning for science and technology. Because the existing mechanism completely ignored market-mediated ties between research institutes/universities and enterprises, one of the primary

\textsuperscript{15} A mixed economy of this type is often referred to as a "socialist market economy."
\textsuperscript{16} Shenzhen, Zhuhai, Hainan, and Xiamen.
\textsuperscript{17} Xinhua News Agency, January 19, 1993.
goals for new technological development was to re-build the connection between research and commercialization. In 1985, the Annual National Science Conference issued a memorandum titled “Decisions to Accelerate the Development of Science and Technology,” calling attention to effective research-commercialization linkages and emphasizing budget cuts in state-owned R&D institutions. Some state-owned research institutes and universities began establishing commercial entities that sought alternative budget sources. At the same time, the government sought to create a favorable environment to encourage technology commercialization. In 1988, for example, the government initiated the Torch Program to provide companies with financial capital, reduced tax rates, and physical facilities. By 1998, the Torch Program had sponsored 53 high-tech zones with about 65,000 high-tech companies. In 1997, the average annual R&D expenditure at Torch Program-sponsored companies was 3.9% of sales, compared with 0.18% of sales at large- and medium-size state-owned enterprises.\footnote{Xu Guanhu (徐冠华): “Gaoju Huoju Qizhi, Shixian Shiji Kuayue (高举火炬旗帜, 实现世纪跨越),” at the “Ten Year Anniversary of the Torch Program,” August 7, 1998.}

Emergence of the ZGC High-Tech Zone

Before 1980, ZGC was an ordinary suburban village. In 1980, Chen Chunxian (陈春先), a physicist at the Institute of Physics of the Chinese Academy of Sciences (CAS), founded the first ZGC company, the Advanced Technology Development Service Corporation. Chen was inspired by his trip to California’s Silicon Valley and Greater Boston’s Route 128. He
realized that "...ZGC has so many talents...but we just did not realize our potential." Upon his return, Chen borrowed RMB ¥ 200 from the Beijing Technology Association and opened a corporate bank account. He hired 15 CAS research fellows as part-time employees, and began to provide testing services and training programs for PC buyers.

Chen’s initiative did not earn him much praise. On the contrary, many criticized him, believing that research fellows should do nothing other than their assigned tasks, and should earn no extra money. Some extremists accused Chen’s company of “corrupting Communist cadres.” Despite this huge pressure, though, Chen continued his commercial operation. However, this pioneer ZGC company did not succeed in the end, because Chen and his colleagues had little knowledge of legal and business matters.

Nevertheless, more and more technology companies began to appear in ZGC. The average monthly salary of a researcher or a professor was RMB ¥ 70, but working at a ZGC company could earn one about RMB ¥ 40 per day. Since research institute reform was encouraged by the central government, BanGongSi (公司, “starting a company” in Chinese) became an alternative funding source. By the end of 1997, there were about 4,500 computer-related companies in ZGC affiliated primarily with Peking University, Tsinghua University and the Chinese Academy of Science.

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19 Interview with Chen Chunxian by a journalist. See “ZhongGuanCun Li Guigu Yuelaiyueyuan (中关村离硅谷越来越远 ZGC is becoming far away from the Silicon Valley),” Sanlian Shenghuo Zhoukan (三联生活周刊), October 15, 1998.
20 Personal interview with a ZGC research fellow, July 20, 1998.
21 Beijing Haidian District Administration data.
Because most users were purchasing PCs for the first time, the need for consultation, system
set-up, and training, meant many opportunities for ZGC startups in computer-related
businesses. Entry barriers to these businesses were relatively high since computer knowledge
was required. Even so, many ZGC startups were more like trading firms. Since IT products
were strictly regulated, one needed a Piwen (批文), government approval of purchases, to
purchase electronic goods such as computers. With a Piwen, a ZGC company was able to
import a certain amount of PCs from abroad and resell them at much higher retail prices. For
instance, in the mid-1980s, an IBM XT machine, which sold in the United States for RMB
¥ 20,000 22 could be sold in ZGC at RMB ¥ 40,000.23 Some companies profited through
trading foreign currencies at a normal rate and then selling at a much higher “market rate”.
Many companies also gained profit by relying on distributors who smuggled in foreign-brand
computers.

During the early and mid-1980s, Chinese-language processing was the biggest barrier for PC
development in China. Consequently, Chinese language input methods,24 localized operating
systems,25 Chinese-language add-on cards,26 Chinese-language typewriters,27 and Chinese
typesetting systems28 became major product categories delivering PC-related technologies.
Since Chinese-language input technologies were a must for Chinese computer users,
companies with such technologies soon established their reputations nationwide.

---

22 This is about US$7,000 at the exchange rate of January 1988.
24 For example, Wangma (王码) and Wubizixing (五笔字型) input methods.
25 For example, CCiOS and CCS.
26 Legend (LXCards), Founder (FDSuperCards), and Juren (JurenCards) were the most famous ones of add-on
card products.
27 The Stone MS-2400 Chinese-English typewriter was the most famous.
28 Founder’s typesetting system began to dominate the market in the late 1980s.
By the mid-1980s, hundreds of PC assemblers and retailers had clustered in ZGC. Very different from traditional Chinese state-owned companies, most were either privately owned or privately managed (see Table 3.1.1.). Zhang Xuanlong ( 张旋龙), a Hong Kong businessman who had worked both with government agencies, such as MEI and the Ministry of Railroad, and ZGC companies, such as Stone, commented,

I found that people at Stone were so different [from people at state-sectors]. They have very active minds, and had a good sense about the market place. Besides, they were very flexible in doing business.  

Table 3.1.1 Selected ZGC Startups

<table>
<thead>
<tr>
<th>Firm</th>
<th>Founding Date</th>
<th>Initial Financial Sources</th>
<th>Nature of Ownership</th>
<th>Main Products and Services</th>
<th>Entrepreneur and Key Members</th>
</tr>
</thead>
</table>

Source: Various

---

29 Personal interview with Zhang Xuanlong, June 16, 1999.
<table>
<thead>
<tr>
<th>Firm</th>
<th>Founding Date</th>
<th>Initial Financial Founding Sources</th>
<th>Nature of Ownership</th>
<th>Main Products and Services</th>
<th>Entrepreneur and Key Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stone</td>
<td>1984</td>
<td>Local Government (Forever Green County)</td>
<td>Privately-owned</td>
<td>Chinese-language add-on cards PCs (1985-1995); consumer electronics</td>
<td>Wan Runnan Duan Yongji (Research Fellows at Chinese Academy of Science)</td>
</tr>
<tr>
<td>King Soft</td>
<td>1988</td>
<td>Personal savings</td>
<td>Privately-owned</td>
<td>Chinese-language word processing software</td>
<td>Zhang Xuanlong (Hong Kong entrepreneur) Qiu Bojun (local engineer)</td>
</tr>
<tr>
<td>UISoft</td>
<td>1988</td>
<td>Personal savings</td>
<td>Privately-owned</td>
<td>Financial software</td>
<td>Wang Jingwen Su Qiqiang (employees of a government agencies)</td>
</tr>
</tbody>
</table>

*Source: Various*
### Table 3.1.2 ZGC Chronology

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>- Chen Chunxian founds the first non-state-owned high-tech firm, the Advanced Technology Development Service</td>
</tr>
<tr>
<td>1983-1984</td>
<td>- The symbols of early ZGC—Kehai Corporation, Jinghai Corporation, Stone Corporation, and Xintong Corporation—established successively</td>
</tr>
<tr>
<td>1988</td>
<td>- The State Council approves the establishment of the Beijing Haidian Experimental Zone in ZGC (ZGC Science and Technology Park, or ZSP)</td>
</tr>
<tr>
<td></td>
<td>- Beijing Municipal Government issues “Beijing Experimental Zone Temporal Regulation”</td>
</tr>
<tr>
<td>1991</td>
<td>- Beijing Shangdi Information Industry Base, the first incubator in ZSP, established</td>
</tr>
<tr>
<td>1997</td>
<td>- First Annual ZGC Computer Fair</td>
</tr>
<tr>
<td></td>
<td>- ZSP becomes the first group network member of APEC Science Parks</td>
</tr>
<tr>
<td>1998</td>
<td>- Overseas Students Pioneer Park established in ZGC</td>
</tr>
<tr>
<td></td>
<td>- The Second Annual ZGC Computer Fair</td>
</tr>
<tr>
<td>1999</td>
<td>- Beijing Municipal Government put forward a new development plan for ZSP</td>
</tr>
<tr>
<td></td>
<td>- The State Council approves “Request for instruction on actualizing the strategy of flourishing country by science and education, and accelerating the construction of ZSP”</td>
</tr>
<tr>
<td></td>
<td>- ZSP Administration Commission established</td>
</tr>
<tr>
<td></td>
<td>- Beijing Science Park Construction Co. Ltd., Beijing Science Park Bidding Co. Ltd., and Beijing ZGC Science Issuance Co. Ltd. established to hasten the construction of ZSP</td>
</tr>
</tbody>
</table>

*Source: Beijing Experimental Zone News, January 15, 2000*

Covering about 100-square kilometers, the ZGC area became the first high-tech development zone in the country in 1988 (see Table 3.1.2.). In 1997, the sales volumes of ZGC Science and Technology Park (ZSP) accounted for 5.5%, 40.0%, and 46.9% of the total in China in IT hardware, software, and services, respectively. In 1999, ZSP had 6,690 high-tech enterprises
authorized by the Ministry of Science and Technology. In that year, these enterprises generated sales revenues of RMB ¥86.41 billion, profits of RMB ¥4.01 billion, and taxes of RMB ¥2.99 billion.\textsuperscript{30} By the end of 1998, the ZGC was home to 920 overseas-funded companies from 31 countries and regions, with a total investment of US$960 million.\textsuperscript{31}

ZGC became the home of the most influential domestic IT companies such as Legend, Founder, and Great Wall. Multinationals, such as IBM, Microsoft, Intel, Hewlett Packard, Compaq, Cisco, Mitsubishi, and Motorola, also set up their China operations in ZGC. The area contains many small computer shops, including black-market outlets for pirated software. There are hundreds of shops providing the latest microprocessors, motherboards, disk drives, memory modules, graphics cards, monitors, keyboards, and modems. Virtually any PC component on the market, including well-known brand-name products, can be found at ZGC. Small clone PC assemblers configure customized systems on the spot. Table 3.1.2. records the development of ZGC.

\textbf{3.1.2 China's PC Industry}

In the mid-1980s, despite the relatively low average income, the Chinese began to embrace PCs with enormous enthusiasm. The reform of China's state-owned research institutions and universities made it possible to start high-tech companies by providing people, money, and—most importantly—legitimacy to privately-run firms. The explosion of the ZGC area rapidly turned China's PC sector into a flourishing market-driven industry.

\textsuperscript{30} ZSP data.
In 1990, to boost the IT market even further, the government lowered import tariffs on electronics goods.\textsuperscript{32} This greatly expanded the PC market which saw its annual growth rate reached 200% in 1992 (see Table 3.1.3.). However, increasing competition from foreign makers threatened the development of domestic-brand PCs.

Despite the considerable competitive pressure, some domestic firms successfully competed in the market. In 1996, after a long struggle, Legend overcame IBM and became the market leader. Following Legend, a group of local companies, such as Tontru, Great Wall, Founder, Tongchuang, Langchao, and Seastar, soon established themselves as well recognized computer brand names. In 1998, for the first time, domestic brand PC sales volume exceeded that of foreign brands (see Table 3.1.3).

\textsuperscript{32} Since then, the government has continuously cut tariffs. For example, import tariffs on fully assembled computers decreased from 20% in 1995 to 15% in 2000. The tariff rate for PC components dropped from 25% to 9%. CLSA Global Emerging Markets data.
Table 3.1.3 Growth of the Chinese PC Market

<table>
<thead>
<tr>
<th></th>
<th>199</th>
<th>199</th>
<th>199</th>
<th>199</th>
<th>199</th>
<th>199</th>
<th>199</th>
<th>199</th>
<th>200</th>
<th>200</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total Sales (10,000 unit)</td>
<td>10</td>
<td>30</td>
<td>50</td>
<td>110</td>
<td>150</td>
<td>210</td>
<td>300</td>
<td>390</td>
<td>490</td>
<td>720</td>
</tr>
<tr>
<td>Growth Rate (%)</td>
<td>--</td>
<td>200</td>
<td>66.7</td>
<td>120</td>
<td>36.4</td>
<td>40</td>
<td>42.9</td>
<td>30</td>
<td>25.6</td>
<td>28.6</td>
</tr>
<tr>
<td>Domestic PCs (%)</td>
<td>40</td>
<td>33</td>
<td>49</td>
<td>44</td>
<td>51</td>
<td>69</td>
<td>72.4</td>
<td>81</td>
<td>n.a.</td>
<td>86.4</td>
</tr>
<tr>
<td>Domestic Brand PCs (%)</td>
<td>n.a.*</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>6.9</td>
<td>19.5</td>
<td>20</td>
<td>n.a.</td>
<td>38.1</td>
</tr>
<tr>
<td>Clone PCs (%)</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>62.1</td>
<td>52.9</td>
<td>61</td>
<td>n.a.</td>
</tr>
<tr>
<td>Foreign Brand PCs (%)</td>
<td>60</td>
<td>67</td>
<td>51</td>
<td>56</td>
<td>49</td>
<td>31</td>
<td>27.6</td>
<td>19</td>
<td>n.a.</td>
<td>15.6</td>
</tr>
</tbody>
</table>

* Not available

Source: CCID (the Center of Computer and Microelectronics Industry Development Research); Ministry of Electronics Industry, China Personal Computer Market and Industry Development Report, 1996 (电子部计算机与微电子发展研究中心, 中国微型计算机市场及产业发展状况报告); International Data Corporation; and Credit Lyonnais Securities Asia; CLSA Global Emerging Markets

In the late 1990s, China’s PC industry showed a great growth rate, just as there were significant declines in some of the world’s other markets. In 2000, For example, PC sales in China in the third quarter of 1998 increased 28%, while decreasing in the Asia Pacific Area.
market (including Japan) by 2.3%. In 1997, China was the sixth-largest PC market in Asia. Within three years, it moved into second place.

The growth potential today is still huge. First, the PC penetration rate remains very low; in 1999, PC penetration of urban households in China was only 5%, compared to 49% in the United States (see Table 3.1.4.). Second, demand is increasing; computing experience is now a “must-have” skill for many jobs. Since domestic makers have drastically driven down the prices, PCs have become a part of urban family life. Some 5% of Shanghai’s families already own a computer, according to official statistics. Third, as the main access device, the PC will play an important role in China’s dramatically booming Internet market. Table 3.1.5. provides details on the development of China’s computer industry.

<table>
<thead>
<tr>
<th>Country</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per Urban Household</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>5</td>
</tr>
<tr>
<td>United States*</td>
<td>49</td>
</tr>
<tr>
<td>Per Population</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>&lt;2</td>
</tr>
<tr>
<td>Taiwan</td>
<td>14</td>
</tr>
<tr>
<td>South Korea</td>
<td>15</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>30</td>
</tr>
<tr>
<td>Singapore</td>
<td>36</td>
</tr>
</tbody>
</table>

*Per total household for the United States

Source: International Data Corporation, Merrill Lynch

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33 International Data Corporation data.
Table 3.1.5 Development of the Chinese Computer Industry

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>- First domestic micro-computer DJS-062</td>
</tr>
</tbody>
</table>
| 1981 | - Huaguang ESP prototype passes test  
      | - First nationwide IT exhibition |
| 1983 | - Wubizixing, Chinese-language input method, invented by Wang Yongming  
      | - Yinghe I, China’s first mainframe computer, built  
      | - Yan Yuanchao develops the first Chinese version of DOS operation system, CCDOS |
| 1984 | - The State Council launches a team, led by Vice Prime Minister Li Peng, to promote the electronic industry  
      | - The Computer Bureau of MEI releases its strategy for the domestic PC industry: transfer, absorb, develop, and innovate  
      | - Deng Xiaoping’s speech: Computing skills need to be taught first to our kids. Thereafter the Ministry of Education establishes computing training center in 27 cities  
      | - Legend’s predecessor, the New Technology Company, established |
| 1985 | - China Computer Associate founded  
      | - GW0520CH, the first domestic PC with Chinese language processing capacity, released. This marks the beginning of China’s domestic PC industry  
      | - HP China established in Beijing |
| 1986 | - Great Wall’s predecessor, China Computer Development Company (CCDC), founded by the Fourth Ministry of Electronics Industry |
| 1987 | - Founder ESP enters the market and is sold to more than 40 newspapers and printing houses within a year |
| 1988 | - Usoft releases the first Chinese financial software product  
      | - Intel China established  
      | - The State Council approves “Torch Program” |
| 1989 | - Jingshan releases WPS, the first Chinese word processing product  
<pre><code>  | - Legend brand PC debuts |
</code></pre>
<p>| 1990 | - National Artificial Intelligence Computer Research Center established in Beijing |
| 1991 | - State Council announces “Computer Software Protection Regulation” |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
</table>
| 1992  | - Legend releases first 486-based PCs in China  
|       | - Great Wall signs a contract with Microsoft and officially purchases MS-DOS5.0  
|       | - Large-scale computer Ying He II built  
|       | - IBM China established in Beijing |
| 1993  | - Newly restructured MEI views the computer industry as a main sector of IT industries  
|       | - Legend’s annual sales of motherboards surpasses 5 million units  
|       | - Legend releases the first Pentium (586)-based PC in China’s market  
|       | - DEC, AST, COMPAQ expand their operations in China |
| 1994  | - Legend goes public on the Stock Exchange of Hong Kong |
| 1995  | - Founder goes public on the Stock Exchange of Hong Kong  
|       | - Microsoft China Ltd. and Microsoft China Research Center established in Beijing |
| 1996  | - Led by Vice Prime Ministry Zou Jiahua, the State Council IT team was founded  
|       | - Domestic brands capture 18% of brand PC market share  
|       | - National 909 Project launched to produce Large Scale Integrated Circuit (LSIC)  
|       | - Dong Da Aer becomes first publicly-listed domestic software company |
| 1997  | - Ying He III mainframe computer was built  
|       | - Great Wall Shenzhen Ltd., Xiang Computer went public  
|       | - Jingshan WPS97 released. In a year, WPS97’s sales exceeds MSword97 |
| 1998  | - Ministry of Information Industry established  
|       | - Legend builds its millionth computer |

*Source: Various*
3.2 Legend Computer Group Corporation

With its PC market share exceeding 30% in the first quarter of 2001 (see Table 3.2.1), Legend Computer Group Corporation (Legend) is now China’s leading PC maker and the largest in the Asia-Pacific region, excluding Japan.\(^{35}\) In 1999, as the PC market declined in the rest of the world, Legend’s PC sales reached 2.6 million units, an increase of about 80% from previous year (see Table 3.2.1). Since 1995, the company has enjoyed an average annual growth rate of 40% in sales revenues (see Table 3.2.2). In addition to its brand PC manufacturing and distribution, Legend’s major products and services include motherboard manufacturing, agent sales of foreign-brand printers, computer peripherals, and Internet connection services (see Table 3.2.3). It is also China’s largest distributor of AST PCs, Hewlett-Packard (HP) PCs and printers, Toshiba notebook computers, and Hayes modems. In 2000, for the third time, Legend ranked top among China’s top 100 electronics companies.

<table>
<thead>
<tr>
<th>Year</th>
<th>90</th>
<th>92</th>
<th>93</th>
<th>94</th>
<th>95</th>
<th>96</th>
<th>97</th>
<th>98</th>
<th>99</th>
<th>00</th>
<th>01 (Q1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market Share (%)</td>
<td>2</td>
<td>6</td>
<td>5.7</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>6.9</td>
<td>10.7</td>
<td>14.4</td>
<td>21</td>
<td>28.9</td>
</tr>
<tr>
<td>Units Sold (000)</td>
<td>2</td>
<td>8</td>
<td>17</td>
<td>25</td>
<td>42</td>
<td>22</td>
<td>8</td>
<td>463</td>
<td>791</td>
<td>1470</td>
<td>2618</td>
</tr>
<tr>
<td>Source: Legend</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^{35}\) According to Dataquest, Legend’s markets share in the Asia Pacific Region market in the second quarter of 2000 was 10.9%, followed by IBM (7.8%), Samsung Electronics (7.6), Compaq (6.9%), HP (5.3%), Acer (5.2%), and Trigem (5%).
In 1994, the company went public on the Stock Exchange of Hong Kong. In 1999, Legend and China Telecom became the only two mainland enterprises among the top ten companies on that exchange. In July 2001, Legend spun off its IT distributor Digital China Group and listed the company separately on the Stock Exchange of Hong Kong (see Table 3.2.4).

Table 3.2.2 Legend’s Growth (revenues and profits are in RMB millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales Revenues</th>
<th>Employee</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>--</td>
<td>11</td>
</tr>
<tr>
<td>1985</td>
<td>3</td>
<td>44</td>
</tr>
<tr>
<td>1986</td>
<td>18</td>
<td>86</td>
</tr>
<tr>
<td>1987</td>
<td>70</td>
<td>199</td>
</tr>
<tr>
<td>1988</td>
<td>190</td>
<td>318</td>
</tr>
<tr>
<td>1989</td>
<td>400</td>
<td>363</td>
</tr>
<tr>
<td>1990</td>
<td>490</td>
<td>507</td>
</tr>
<tr>
<td>1991</td>
<td>750</td>
<td>630</td>
</tr>
<tr>
<td>1992</td>
<td>1,767</td>
<td>705</td>
</tr>
<tr>
<td>1993</td>
<td>3,015</td>
<td>n.a.*</td>
</tr>
<tr>
<td>1994</td>
<td>4,760</td>
<td>n.a.</td>
</tr>
<tr>
<td>1995</td>
<td>6,700</td>
<td>n.a.</td>
</tr>
<tr>
<td>1996</td>
<td>7,740</td>
<td>n.a.</td>
</tr>
<tr>
<td>1997</td>
<td>12,500</td>
<td>6,000</td>
</tr>
<tr>
<td>1998</td>
<td>17,600</td>
<td>n.a.</td>
</tr>
<tr>
<td>1999</td>
<td>20,300</td>
<td>n.a.</td>
</tr>
<tr>
<td>2000</td>
<td>28,400</td>
<td>9,000</td>
</tr>
</tbody>
</table>

* Not available

Source: Legend; Cazenove & Co. Annual Review July 17, 2000
Table 3.2.3 Breakdown of Legend’s Sales by Segment (%)

<table>
<thead>
<tr>
<th>Year</th>
<th>PCs and Other Access Devices</th>
<th>Motherboard</th>
<th>Foreign Brand Distribution</th>
<th>Internet Services</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>30</td>
<td>60</td>
<td>60</td>
<td>--</td>
<td>n.a.*</td>
</tr>
<tr>
<td>1993</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>--</td>
<td>n.a.</td>
</tr>
<tr>
<td>1998</td>
<td>34</td>
<td>18</td>
<td>31</td>
<td>--</td>
<td>17</td>
</tr>
<tr>
<td>1999</td>
<td>44</td>
<td>12</td>
<td>32</td>
<td>--</td>
<td>12</td>
</tr>
<tr>
<td>2000</td>
<td>60</td>
<td>3.9</td>
<td>31.5</td>
<td>4.2</td>
<td>0.4</td>
</tr>
</tbody>
</table>

* Not available
Source: Legend

3.2.1 Founding Process and Early Development

Founding Process

Legend's predecessor, the New Technology Development Corporation of the Institute of Computing (NTDC),\(^{36}\) was founded on November 1, 1984 with an investment of RMB 200,000 (about US$24,096) from the Institute of Computing Technologies (ICT), a subsidiary of the Chinese Academy of Science (CAS).

Table 3.2.4 Legend's Public Companies

<table>
<thead>
<tr>
<th>Company</th>
<th>Stock Market</th>
<th>Stock Code</th>
<th>IPO Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legend Holdings Ltd.</td>
<td>Stock Exchange of Hong Kong</td>
<td>HK 0992</td>
<td>1994/04</td>
</tr>
<tr>
<td>Digital China Group</td>
<td>Stock Exchange of Hong Kong</td>
<td>HK 0861</td>
<td>2001/06</td>
</tr>
</tbody>
</table>

Source: The Stock Exchange of Hong Kong

\(^{36}\) The company was renamed Legend Computer Group Corporation In September 1989.
At that time, there were already hundreds of computer-related startups in the ZhongGuanCun area (ZGC), including 72 CAS-affiliated entities. Some firms, such as Stone, XinTong, KeHai, and JingHai, had already established nationwide visibility as ZGC technology companies. Forty-year-old Liu Chuanzhi (柳传志), a research fellow at ICT, was assigned as the new company’s general manager. The motivation was very simple: improve the income of researchers. Eleven former ICT research fellows began to join the “Xiahai” wave by selling small, “fashionable” commodities such as digital watches, batteries, and roller skates. Nobody knew exactly where to go as an enterprise.

Agent Sales and Commercialization of LXCards

In early 1985, the company made a “fortune” through testing 500 IBM computers and training the users for ICT. Liu and his colleagues realized that they could finance the company by utilizing their computer-related skills. They began to trade foreign-brand machines such as IBM and HP computers. In 1987, the company had the first official sales agreement with AST Research (AST), which became the fifth-biggest computer maker in the world in the early 1990s. As the exclusive AST distributor, Legend soon established its market reputation by making AST the leading brand in China in the late 1980s and early 1990s.

The company began to look for research outcomes with commercial potential. Liu went to see Ni Guangnan (倪光南), a research fellow at ICT who had been doing research on Chinese-

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37 ZSTP data.
38 Stone, XinTong, KeHai, and JingHa were famous as “Two Tong Two Hai” (两通两海). Liang Tong and Lian Hai were not able to sustain their initial market success.
39 “Jumping into the sea” in Chinese, an idiomatic expression that means “engaging in commercial activities.”
40 The cooperation between Legend and AST ended in 1995 when Samsung acquired AST. In 1997, AST lost US$350 million and Samsung sold the company to Benny Alagem, who renamed the company AST Computers.
language processing technologies. Ni was persuaded to join the company as chief engineer. At the time, the common way to input Chinese characters was to use a language add-on card inserted into the computer. Legend began to commercialize Ni’s technology and launched the company’s first product, the Legend Chinese-Language Add-on Card (LXCard), in April 1985.

Although there were several similar Chinese-language add-on card products already on the market, the LXCard soon captured a 50% market share.\(^41\) A single add-on card, with components costing US$100, could be sold at RMB¥3,000. In the next three years, sales of LXCards contributed 38.1% of Legend’s sales revenues and 45.6% of profits.\(^42\) From 1985 to 1995, some 160,000 LXcards were sold.\(^43\) In 1987, the company began to bundle its add-on card products with AST PCs, boosting the sales of AST computers. Although LXCards exited the market in 1995, the company “became famous because of them. After all, Legend was named after this product.”\(^44\)

Legend Hong Kong: Growth Opportunities

 Unlike other state-owned PC makers such as Great Wall and Langchao, Legend was unable to obtain a PC manufacturing license from the government since the industry was strictly regulated. Liu began to consider alternatives to expand his business. Liu’s father, an executive at the state-owned China Technology Corporation, put him in touch with Lu Tanpin （吕谭平）,

\(^{41}\) LianXian GuanLiXueYuan Cai Liao （Legend Management School Material）, 1996.


\(^{43}\) Ibid.

founder of Daw Inc., a small computer-related trading firm in Hong Kong. In June 1988, a Hong Kong-based joint venture, Hong Kong Legend Technology Inc. (Legend Hong Kong), was established by Legend, Daw, and China Technology, each with an initial investment of HK$300,000. Liu said, "Daw was not necessarily an ideal partner, but we just wanted to be in Hong Kong to see if there was any opportunity."\(^{45}\)

Liu described the joint venture vividly as "a blind person carrying a lame one," patching together technologies from Legend, market knowhow from Daw, and financial capital from China Technology. The joint venture mainly distributed foreign-brand PCs and computer peripherals to Beijing Legend and other domestic computer trading companies. In the same year, Legend acquired Quantum Design Inc. (QDI), a small Hong Kong-based PC motherboard manufacturer. In the first year of the joint venture's operation, sales revenues reached HK$120 million.\(^{46}\)

Without the constraint of PC manufacturing quotas, Legend could design and manufacture its own brand of PCs. In March 1989, the company brought the first Legend PC, the LX286PC, to CeBIT, the world's largest annual computer and communications exhibition, held in Hanover, Germany. During the exhibition, the LX286PC registered more than 1,000 orders, thanks to its high performance/price ratio. However, Legend soon found that 80% of the PCs made by QDI had defects. Eventually, the company had to refund most of these purchases. "If this had happened in China, quality problems would not have led to order cancellation," Liu recalled.\(^{47}\) Other similar experiences they had with the Hong Kong operation allowed Liu and

\(^{45}\) Personal interview with Liu Chuanzhi, August 12, 1999.
\(^{47}\) Chuanzhi interview, *ibid.*
his colleagues to become more familiar with doing business in a market economy. By the end of 1989, Legend Hong Kong had incorporated another business, systems integration, into its mix.

The business expansion in Hong Kong led to a breakthrough in Legend’s growth. In October 1989, Legend’s own brand of PCs finally went through the technical test administered by the Torch Program.\(^{48}\) Soon the authority granted the company permission to manufacture Legend PCs in Mainland China and, in 1990, Legend began to assemble its PCs in Beijing. Combining the motherboard manufacturing based in Hong Kong, the young startup had now been transformed from a foreign-brand distributor to a brand-name PC maker. In 1994, Legend Hong Kong also began to manufacture printed circuit boards. Not only did the Hong Kong operation provide the company with a window through which to seek outside resources such as financial capital, but it also brought the company opportunities in PC and motherboard manufacturing. Legend Hong Kong also prepared Legend’s IPO on The Stock Exchange of Hong Kong on February 24, 1994 (HK stock code: 0992).

However, the Hong Kong operation gradually began to experience some serious management problems. In 1995, the company faced a crisis brought on by an unexpected price fluctuation in the global computer component sector. Legend lost RMB ¥ 187 million in its motherboard business, which proved to be fatal to the company.

\(^{48}\) See 3.1.1. for details on the Torch Program.
3.2.2 Legend PCs: Targeting Local Needs

Based on its success selling foreign-brand PCs, Legend soon held 6% of the domestic PC market and the company quickly expanded its manufacturing capacity. In 1992, it established manufacturing bases in Shenzhen, Beijing, and Huiyang. In 1993, Legend PCs received the government’s Science and Technology Progress Prize. That same year, Legend surpassed Great Wall, the largest state-owned PC maker, for the first time, becoming the domestic market leader.

In 1990, the Chinese government reduced tariffs substantially, allowing imported IT products to be introduced. As foreign-brand PCs entered China, a number of multinationals simultaneously strengthened their local operations. In 1992, IBM established a wholly owned subsidiary, IBM China Co. Ltd., in Beijing. In 1993, Compaq announced a new manufacturing operation in Shenzhen to produce PC components. Other well-known players, such as HP, Apple, and Acer, also quickly joined China’s PC market. Soon, led by AST and Compaq, foreign-brand PCs dominated the brand name PC market in 1994.

Multinationals enjoyed the great advantage of lower prices, based on large-scale purchasing and thanks to sophisticated manufacturing skills. People began to question the necessity of developing domestic-brand PCs. Facing intensified competition, some domestic makers exited the market, while others, such as Great Wall, formed joint ventures with foreign firms.

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49 Since then, the government has reduced tariffs several times. In 1997, China reduced import and export tariffs substantially. Tariffs on electronic information products such as PCs, digital processing units, primary operating systems (POSs) industrial control equipment, monitors, and stylus printer products have declined from 20% to 15%; on keyboards and mice from 20% to 12%; on ATMs from 25% to 18%; on stylus and other spare parts from 12% to 9%; on voltage stabilizers and uninterruptible power supplies (UFSs) from 25% to 18%; and on workstation database processing units from 15% to 12%.

50 The facility began operating manufacturing lines for printed circuit boards and final product assembly in August 1994.
to survive. Like all other domestic firms, Legend’s market share also dropped significantly (Table 3.2.1). In 1994, Legend planned to sell 30,000 PCs, but sold only 20,000—the first time the company did not meet its sales goal. Many industry observers concluded that Chinese companies should switch to lower-end sectors such as components and peripherals.\(^5^1\)

Legend decided to stay its course. In April 1994, Liu assigned 29-year-old Yang Yuanqing (杨元庆) the task of restructuring the PC business.

**Yang Yuanqing and Reengineering**

In 1989, after receiving his master’s degree in computer science from the University of Science and Technology of China, Yang took a position in Legend’s R&D division. Liu then offered him a job as a salesman. In 1991, when Yang was thinking of leaving his position to pursue graduate studies in the United States, Liu convinced him to stay, appointing him general manager of Legend CAD, the division in charge of selling HP and Sun products.

The new position provided Yang exposure to business practices such as marketing, distribution channel management, and dealing with commercial orders. Liu said that the main reason he chose Yang to manage the PC division was to ensure that the company would begin following the “market rules.”

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\(^5^1\) LianXian GuanLiXueYuan Cai Liao (Legend Management School Material); and “How Long Can Legend Survive?” *Beijing Youth Daily* (北京青年报), November 11, 1994.
We asked Yang to carefully study how we should conduct our business. He had done that well as a sales agent with HP, so we expected that he would bring some good practices to the company.\footnote{52} Yang began by cutting the workforce from 230 to 150 employees, while improving the compensation system. He then began to rebuild the distribution network. In 1991, Yang had designed and established a two-layered distribution system for HP, dividing distributors and direct sales agents. That structure improved sales. He decided to build the sales force at Legend in a similar fashion. Legend had begun to establish distribution channels for AST back in 1989. However, since its regional subsidiaries handled both direct sales and distribution, there were frequent conflicts between dealers and subsidiaries. This it difficult to build mutual trust between the company and its dealers. Yang first downsized the sales force from more than 100 people to 18, and switched the objective from selling PCs to seeking and managing distributors.\footnote{53} Right after he came to the PC division, Yang spent four months traveling to major regions recruiting dealers. However, most established distributors in the market wanted to do business only with bigger names such as IBM and Compaq. In the end, Yang was able to convince only small, fledgling companies to work with him. He proposed a slogan—“Growing together with Legend”—to encourage his dealers. Ironically, having only smaller agents turned out to be an advantage. Unlike big agents, small trading firms were quite dependent on Legend to make money. Du Jianhua (杜建华), the former vice president of Legend Computer System Ltd., who was in charge of the company’s distribution channels for the Shanghai region, commented:

\footnote{52}{Chuanzhi interview, \textit{ibid.}}
\footnote{53}{Personal interview with Yang Yuanqing, July 16, 1998.}
We were not big enough, so we built our distribution channels with smaller firms. In turn, these companies became very loyal to Legend because they had to depend on us. When more and more makers joined the competition, many dealers began to sell several brands at the same time. But ours have been very loyal ... because we built such an interdependent relationship from the beginning.\(^{54}\)

Over time, Legend developed a comprehensive system to manage its distribution network (see Table 3.2.5). Regional offices were established to control account receivables, after-sales service, and other aspects of operations. In the early years of China’s PC sector, many makers would try to motivate big dealers by offering them a 10% discount. Consequently, these dealers would usually lower their retail prices and push smaller companies out of business. To avoid such unhealthy price wars, Legend established a single price for its products to keep dealers from competing with one another on price, and established an incentive system based on sales performance: dealers who met their sales quota would receive a discount for future periods. To encourage its loyal distributors, the company also adopted the sales rebate method introduced by foreign makers such as HP. For example, selling 10,000 PCs earned a 5% rebate from Legend. However, unlike other companies, Yang reduced the rebate cycle from one year to three months. In addition, Yang proposed the concept of “Big Legend”: dealers would participate in Legend’s management training sessions and other business activities. Beyond building formal business relationships, Yang himself would always try to make friend with his dealers. Every year, there would be a regular gathering of the distribution force. Lin Yang (林杨), an executive at Legend, recalled the 1999 annual dealer’s meeting:

\(^{54}\) Personal interview with Du Jianhua, July 10, 1998.
Yang Yuanqing woke them [dealers] up at 4 o’clock in the morning, taking them to Tiananmen Square to see the national flag raising ceremony ... No another PC maker could do that with its dealers. But Yang did because he was [the dealers’] buddy.\textsuperscript{55}

Legend’s close relationship with its dealers not only made it easier to achieve a significant market share, but also made the distribution network an effective channel to provide the company with valuable information on customer needs.

\textit{Table 3.2.5 Managing Distribution Networks}

<table>
<thead>
<tr>
<th>Incentives</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive discounts</td>
<td>To motivate sales volume</td>
</tr>
<tr>
<td>Sales rebates</td>
<td>To award loyalty</td>
</tr>
<tr>
<td>Uniform pricing</td>
<td>To protect distributor interest</td>
</tr>
<tr>
<td>Sales &amp; marketing support</td>
<td>To encourage promotion of new products</td>
</tr>
</tbody>
</table>

\textit{Source: Legend}

Gradually, Legend developed the most extensive distribution network in China’s market. By 1999, the company had established a four-tiered distribution structure. Distributors supervised lower-level distribution channels such as dealers and resellers, and “1+1 home PC specialty shops” were responsible for retail customers. In 2000, the number of nationwide distributors, dealers, and resellers (excluding specialty shops) for Legend PCs reached 3,400 (See Table 3.2.6). This was more than three times the size of IBM’s sales force in China (see Table

\textsuperscript{55} Personal interview with Lin Yang, June 26, 1999.
3.2.13). In addition, Legend specialty shops offered repair services and free training for first-time buyers. The company also provided its customers with 400 service centers, 24-hour hotlines, and an online service website.
Table 3.2.6 Legend's Distribution Channel Development (for Legend Brand PCs)

<table>
<thead>
<tr>
<th>Year</th>
<th>Covered Areas</th>
<th>Target Customers</th>
<th>1997</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distributors</td>
<td>Nationwide</td>
<td>Govt., large corp.</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Dealers</td>
<td>Cities - nationwide</td>
<td>SME</td>
<td>500</td>
<td>700</td>
<td>900</td>
<td>1,000</td>
</tr>
<tr>
<td>Resellers</td>
<td>Smaller cities, suburban</td>
<td>SME</td>
<td>600</td>
<td>800</td>
<td>1,000</td>
<td>2,200</td>
</tr>
<tr>
<td>Specialty Shops</td>
<td>Beijing, Shanghai, Guangzhou, Shenzhen</td>
<td>Retail</td>
<td>--</td>
<td>11</td>
<td>70</td>
<td>100</td>
</tr>
</tbody>
</table>

*Source: Legend; CLSA Global Emerging Markets*

In 1995, rapidly increasing unit sales resulted in some unprecedented logistics and storage issues. Yang quickly responded by improving the inventory and cash management systems, and by shortening inventory cycles. By the next year, the inventory cycle had been cut from 55 to 37 days, and the cash collection period on accounts receivable had been shortened from 42 to 37 days.56

**Fighting Back: A Successful Price War**

In 1996, the worldwide PC market began to switch from the 486 chips to the Pentium. Yang sensed that the dramatic fall in CPU prices would mean an opportunity for Legend. He proposed to top management that the company could expand its PC market share by initiating a price war. While many executives thought that this was too risky, Liu Chuanzhi did not hesitate to let Yang make his own decision.

---

In April 1996, Yang initiated the “RMB ¥10,000” Pentium campaign, cutting the prices of Legend’s Intel Pentium II processor (PII)-based PCs to below RMB ¥10,000. As a result, Legend’s PCs became about 25% less expensive than major foreign brands such as IBM, Compaq, and HP. The price reduction led to a Legend PC purchasing boom. Within a year, Yang had slashed the price three times. In December 1996, Legend’s market share for desktop PCs was top in China. In March 1997, Legend PCs surpassed IBM products for the first time and led the market with a 10% market share. Legend’s achievement stimulated fellow domestic makers such as Founder, Great Wall, and Tontru. Domestic brand names began to establish their reputations among Chinese consumers and became a dominant force in the market (see Table 3.2.7). Moreover, because of Legend’s efforts, PII-based PCs became mainstream products in China’s market, where before multinational had been merely selling older models. Since then, Legend and the other domestic companies have succeeded in introducing the most advanced PC technologies to China’s market. In 1994, for example, immediately after Intel introduced its MMX multimedia chip, eight local makers released domestic MMX-based PCs before any foreign companies. Multinational makers eventually had to respond to Legend’s aggressive attack by reducing their retail prices and introducing their newest technologies. PCs became more affordable (see table 3.2.8).

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57 At this point, Legend still lagged behind HP, Compaq, and IBM in server sales.
Table 3.2.7 Market Share of Major PC Makers in China (%)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Compaq</td>
<td>14.1</td>
<td>Compaq</td>
<td>11.6</td>
<td>Legend</td>
</tr>
<tr>
<td>IBM</td>
<td>4.0</td>
<td>IBM</td>
<td>5.7</td>
<td>IBM</td>
</tr>
<tr>
<td>HP</td>
<td>3.3</td>
<td>Legend</td>
<td>5.0</td>
<td>HP</td>
</tr>
<tr>
<td>Legend</td>
<td>3.0</td>
<td>HP</td>
<td>4.8</td>
<td>Compaq</td>
</tr>
<tr>
<td>Acer</td>
<td>1.6</td>
<td>Great Wall</td>
<td>2.9</td>
<td>AST</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legend</td>
<td>14.4</td>
<td>Legend</td>
<td>21.5</td>
</tr>
<tr>
<td>IBM</td>
<td>6.5</td>
<td>IBM</td>
<td>6.2</td>
</tr>
<tr>
<td>HP</td>
<td>5.7</td>
<td>Founder</td>
<td>5.9</td>
</tr>
<tr>
<td>Compaq</td>
<td>4.3</td>
<td>HP</td>
<td>5.6</td>
</tr>
<tr>
<td>Founder</td>
<td>3.7</td>
<td>Great Wall</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Source: IDC

In March 1997, Legend established Legend Computer Systems Ltd. (LCS) to pursue further its PC development. BusinessWeek commented, "Yang Yuanqin has transformed Legend Holdings into China’s most successful computer maker, outmaneuvering more sophisticated international players in his home market.\(^{58}\)

Legend had transformed itself from a passive follower to an active competitor. It has had no serious challenge to its market leadership since.

Table 3.2.8 Average Price of PCs in China (RMB ¥)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11,000</td>
<td>9,910</td>
<td>9,446</td>
<td>9,073</td>
<td>7,712</td>
</tr>
</tbody>
</table>

Source: CLSA Global Emerging Markets

Home PCs and Localization

At the end of 1990, eight of ten Chinese PC consumers were first time buyers.\textsuperscript{59} Unlike Westerners, who were familiar with typewriters before using computers, Chinese users had no experience with keyboards. Additionally, users were unfamiliar with computer software packages. In the late 1980s and early 1990s, no PC maker had taken this unique situation into consideration. Foreign makers had long focused on the high-end market and institutional purchasing, and China’s consumer PC market had remained unexplored.

By early 1994, under the leadership of Xu Zhiping (许志平),\textsuperscript{60} then the general manager of the PC division, Legend had already begun to promote the concept of “Home PCs,” targeting less knowledgeable Chinese family users. Up to that time, Legend had followed every generation of the Wintel standardized product design: LX286PCs, LX386PCs, and LX486PCs. There was very little difference between the company’s products and others on the market. In January 1995, Legend released the 1+1 series products (LX1+1PCs) designed for the household sector.

LX 1+1PCs did not immediately attract users. One major drawback was that the machine was not user-friendly—the functions provided were overly sophisticated. Plus, PCs were still luxury goods for Chinese families. So, in late 1996, Legend released a simplified home PC series designed to be user-friendly. Called “Tianxie,” the series was based on the concept of “software, hardware, and service integration.” Tianxie soon became popular among family buyers. More important, Legend’s effort led to a dramatic expansion in China’s household market for PCs (see Table 3.2.9).

\textsuperscript{59} USA Today, December 6, 1999.
Table 3.2.9 China's Consumer PC Sector

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer PCs (% of PC Market Share)</td>
<td>9.5</td>
<td>19.1</td>
<td>16.2</td>
<td>18.6</td>
<td>25.6</td>
<td>25</td>
<td>32.2</td>
</tr>
</tbody>
</table>

*Source: MII; CLSA Global Emerging Market; IDC*

To make its products more user-friendly, Legend developed pre-installed software packages for both home users and business buyers. The “Happy Family” software package provided a graphic interface for home users. One could simply click on vivid screen icons, such as a desk, or a bookshelf, to open the desired program. A similar software package, “My Office,” was designed for commercial PC clients, with additional functions such as taxation management.

In August 2000, Happy Family ranked as China’s best software product in a nationwide survey.\(^{61}\)

Legend also design its home PCs to have a family-oriented appearance. In 1999, Legend home PCs appeared on the market with different colors for components such as the monitor, mouse, keyboard, writing table and chassis, while other products in the market were still being packaged in traditional styles. Yang emphasized: “We had an advantage in this sector where the cultural flavor was strong but less professional capabilities were necessary.”\(^{62}\)

In 1999, Legend released another new series of products, functional PCs. These allowed users easy access to a variety of computer functions (see Table 3.2.10). For example, the Tianhe

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\(^{60}\) Xu left Legend in 1996.


\(^{62}\) Yuanqing interview, *ibid.*
series came with a 21-button functional keyboard through which users could easily access programs such as home office and home theatre.

<table>
<thead>
<tr>
<th>Model</th>
<th>Market</th>
<th>Price Range (RMB ¥)</th>
<th>Functions</th>
<th>Target Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. of Education</td>
<td>School</td>
<td>4,399</td>
<td>Educational</td>
<td>Low/mid</td>
</tr>
<tr>
<td>Tianxie</td>
<td>Home</td>
<td>5,999-8,999</td>
<td>Basic</td>
<td>Low/mid</td>
</tr>
<tr>
<td>Tianhe</td>
<td>Home</td>
<td>9,988-17,688</td>
<td>Pentium III</td>
<td>Mid</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pentium II/III “Functional PCs”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Thin LCD display</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Small size (1/3 of a regular desktop)</td>
<td></td>
</tr>
<tr>
<td>Tianlu</td>
<td>Home</td>
<td>17,988-22,988</td>
<td>No hard disk</td>
<td>High</td>
</tr>
<tr>
<td>Geminl</td>
<td>Corporate</td>
<td>3,899-4,999</td>
<td>Basic</td>
<td>Low</td>
</tr>
<tr>
<td>Sun Chase</td>
<td>Corporate</td>
<td>6,999-8,799</td>
<td>Basic</td>
<td>Mid</td>
</tr>
<tr>
<td>Luna</td>
<td>Corporate</td>
<td>9,599-13,599</td>
<td>Pentium III</td>
<td>High</td>
</tr>
<tr>
<td>Tianxi (Conet)</td>
<td>Home</td>
<td>9,988-17,988</td>
<td>Built-in instant Internet access</td>
<td>Mid/high</td>
</tr>
<tr>
<td>Set Top Box (STB)</td>
<td>Home</td>
<td>2,500</td>
<td>PC, Internet access</td>
<td>Low/mid</td>
</tr>
</tbody>
</table>

*Source: Legend*
When the Internet boom began in China, PC makers faced the “post-PC-era” threat. Legend responded to this by introducing “Internet PCs,” which focused on easy access to the Internet. Tianxi, a first-generation Internet model, was equipped with a function called “one touch to the net.” The Tianxi came bundled with pre-installed Internet access through FM365.com.cn (FM365)—Legend’s own ISP (Internet service provider) and ICP (Internet content provider) operations. Users could easily surf Web sites by hitting an “Internet” channel key on the keyboard without having to set up any Internet software or dial any phone numbers. As a further incentive, Tianxi users could enjoy free online service for one year through a special deal between Legend and China Telecom.

In 1998, most of Legend’s 24 patents were for technologies tailored to local needs. In August 2000, Tianxi received Intel’s Innovative PC Recognition Award. The Intel Pentium III processor-based Tianxi was pre-installed with voice-recognition software and a handwriting tablet. The reduced number of legacy ports in the Tianxi allowed easy access to different functions. The machine also incorporated new power-saving methods. Liu Jun (刘军), a vice president at LCS who was in charge of R&D, commented,

We adopted the Chinese-language handwriting system last year when there were no foreign PC makers pursuing this technology. The market in China was still relatively small for foreign PC makers by world standards, so they had not put enough effort into developing applications that were more relevant to local needs. Legend had hundreds of engineers working on localized

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63 The other three winner PCs were the Daewoo Qrium 663X and 663N, and the IBM Net Vista X40.
64 In Tianxi, there was only eight USB (Universal Serial Bus) ports.
designs. For example, the one key to log on to the Internet was a very complicated design that required technical capabilities.\textsuperscript{65}

Local makers began to imitate Legend’s market-tailored products, and many Chinese users today are now able to enjoy hassle-free computers. But Legend has always been able to come up with new ideas before its competitors could copy its previous ideas. Liu Jun explained:

Yes, since our products have been successful, our rivals look closely at what we do. Some makers have identical products to ours. But we are quick in generating new ideas and new models. We know the market very well because out there, our tight-linked distribution networks are getting firsthand information for us.\textsuperscript{66}

Since 1995, annual sales growth of Legend PCs has exceeded 100\% (see Table 3.2.1). The company’s dominant market position in the consumer PC sector has, to some extent, contributed to its overall market leadership (see Table 3.2.11). At the same time, the company established a role model for other domestic brand makers in distribution networks, localized products, and after-sales services (see Table 3.2.12).

\begin{table}[h]
\centering
\caption{Breakdown of Unit Shipment of Legend PCs by Product (\%)}
\begin{tabular}{|l|c|c|c|c|}
\hline
Year & Commercial PC & Consumer PC & Server & Notebook Computer \\
\hline
2000 & 51 & 43 & 5 & 1 \\
\hline
\end{tabular}
\end{table}

\textit{Source: Legend}

\textsuperscript{65} Personal interview with Liu Jun, August 10, 1999.
\textsuperscript{66} Jun interview, \textit{Ibid.}
Table 3.2.12 Comparison Between Big Players (as of 1999)

<table>
<thead>
<tr>
<th></th>
<th>Clone PCs</th>
<th>Legend</th>
<th>Great Wall</th>
<th>IBM</th>
<th>HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. Price for PII (RMB ¥)</td>
<td>7,500-11,000</td>
<td>9,800-15,000</td>
<td>7,800-11,000</td>
<td>17,000-22,000</td>
<td>10,800-18,000</td>
</tr>
<tr>
<td>Distribution Network</td>
<td>No established distribution network</td>
<td>100 distributors, 900 dealers, 1,000 resellers, 70 specialty shops</td>
<td>480 dealers, 280 retail outlet</td>
<td>1,000 distributors</td>
<td>&lt;1,000 distributors</td>
</tr>
<tr>
<td>After-sales Service</td>
<td>Non-existent, with no guarantee</td>
<td>3-year guarantee, 24 hr hotline service, 400 maintenance centers, on-site service</td>
<td>3-year guarantee, 8 service centers, 160 maintenance outlets</td>
<td>3-year guarantee, IBM service and support center</td>
<td>3-year guarantee, 60 maintenance centers</td>
</tr>
<tr>
<td>Customized Product</td>
<td>No</td>
<td>Preinstalled software, specifically designed hardware for China’s customers, multiple products for various market segments</td>
<td>Low end PCs</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Imported foreign components</td>
<td>&gt;90%</td>
<td>40%</td>
<td>40%</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>Production Base</td>
<td>Nationwide</td>
<td>Huiyang, Beijing</td>
<td>Shenzhen</td>
<td>Shenzhen</td>
<td>Shanghai</td>
</tr>
<tr>
<td>Production Capacity (units)</td>
<td>Not determined</td>
<td>1.5m</td>
<td>1m</td>
<td>1.2m</td>
<td>750,000</td>
</tr>
<tr>
<td>Target Market Income Bracket</td>
<td>Low-end home users, annual income ≤RMB ¥ 3,000</td>
<td>Corporate, government, mid/high-end home users, annual income ≤RMB ¥ 3,000</td>
<td>Small and medium enterprises, low/mid-end home users, annual income ≤RMB ¥ 3,000</td>
<td>Foreign MNCs, corporations, high-end home users, annual income &gt; RMB ¥ 3,000</td>
<td>Foreign MNC, corporations, high-end home users, annual income &gt; RMB ¥ 5,000</td>
</tr>
</tbody>
</table>

Source: Legend, CLSA Global Emerging Markets
3.2.3 Liu Chuanzhi and Mao-Gong-Ji

Liu Chuanzhi graduated in 1966 from Xian Military Telecommunication Engineering College with a degree in radar design engineering. As with most college graduates during the Cultural Revolution, Liu was sent to a state farm a year after his graduation. Two years later, he returned to the ICT as a research fellow. However, there was not much to do. “I just wanted to do something, since my youth was wasted in the Cultural Revolution; I was so frustrated by not doing anything,” Liu recalled. In 1984, when he started the company, he began to feel “full of energy.”

Soon after their emergence, ZGC computer-related companies demonstrated that technology could generate revenue. Many companies, such as Founder, believed that the “technology-manufacturing-trading” (Ji-Gong-Mao) approach was the right growth path for domestic technology firms. However, Liu had developed a different view from Legend’s founding experiences. In 1996, he concluded that Legend had followed, and would instead continue to follow, the path of “Mao-Gong-Ji” (trading-manufacturing-technology), taking commercial activities as the first necessary step. “Technology is the last thing that should be done,” Liu insisted. In 2000, Legend represented more than 20 foreign multinationals in China, with its agent sales repertoire including foreign-brand PCs and computer-related products. “Mao” (trading) has not only brought Legend significant financial capital, but also helped the

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67 Liu received the Second National Technology Entrepreneurs Gold Award in 1990, Model of National Work Force and Man of Reform Awards in China in 1995, and was listed as one of the Ten Most Influential Men of the Commercial Sector in China in 1996. He has been Vice Chairman of China Industry & Commerce Association since 1997. Liu was also elected as the Representative of the Ninth National People Congress of the PRC in 1998. In 1999, Liu was selected by Fortune Magazine as one of the runners-up of Asia’s Businessman of the Year. In 2000, he was selected as one of the Stars of Asia by BusinessWeek.
68 Personal interview with Liu Chuanzhi, August 12, 1999.
69 Chuanzhi interview, ibid.
70 Chuanzhi interview, ibid.
company obtain valuable experiences in management. "Mao" activities also led to close relationships with top multinationals in technological development (see Table 3.2.13). "Gong" (manufacturing) was represented primarily by the production of Legend's own brand of motherboards and PCs. With a manufacturing capacity of 780,000 units per year, the company's Huiyang Technology Park ranked as the world's third-largest manufacturing base for motherboards in 1999. Additionally, in August 1998, Legend invested $4.5 million to purchase 30% of the equity of Kingsoft, becoming the leading shareholder of one of the most famous Chinese software companies.71

71 Kingsoft was established in 1988. Its main businesses included office software, tool software, and recreational and educational software. Kingsoft was well known for its WPS (Word Processing System) software package. Its latest version of "Kingsoft WPS97," which was launched in September 1997, is compatible with Windows 3.1, Windows 3.2, and Windows 95 Simplified Chinese Character software. According to Center of Computer and Microelectronics Industry Development Research statistics, Kingsoft WPS97 was the best-selling word processing software in China in 1997. Approximately 34,000 units have been sold since its introduction. After its acquisition by Legend, Kingsoft was renamed the Legend Kingsoft Holdings Ltd., Yang Yuanqing became the chairman.
Table 3.2.13 Legend’s Technology Partnerships (by 2000)

<table>
<thead>
<tr>
<th>Partner</th>
<th>Nature of Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel</td>
<td>Strong working relationship</td>
</tr>
<tr>
<td>Microsoft</td>
<td>Strong working relationship</td>
</tr>
<tr>
<td>Computer Associates</td>
<td>An equal joint venture by Legend and Computer Associates to develop software for the local market</td>
</tr>
<tr>
<td>D-Link</td>
<td>Joint venture capitalized at US$ 10 million in which Legend holds 57% and the remainder by D-Link to design, manufacture and distribute networking products for the local market</td>
</tr>
<tr>
<td>IBM</td>
<td>A strategic alliance with IBM to customize and distribute IBM software products in China</td>
</tr>
<tr>
<td>National Semiconductor</td>
<td>A jointly established laboratory by Legend’s parent (CAS) and National Semiconductor to develop internet appliances such as set top boxes and thin clients</td>
</tr>
<tr>
<td>Texas Instrument</td>
<td>A jointly established Digital Signal Processing laboratory by Legend’s parent (CAS) and Texas Instruments to develop products such as ADSL modems</td>
</tr>
</tbody>
</table>

Source: Legend

Although created as a ZGC trading company, Legend earned significant market recognition and early financial capital through its LXCards. It has been said that Legend’s chief engineer Ni Guangnan and CEO Liu Chuanzhi were the best team in ZGC. However, in the beginning of the 1990s, tremendous improvements in PC technologies led to a decline in the Chinese-language add-on card business. Expanded computer storage space enabled sophisticated software to process Chinese characters. Yet, Ni still devoted resources to developing new generations of LXCards. “Since Ni was a hardware person, he refused to give up on LXCards.
As a result, Legend lost its advantage in the add-on card market while other companies began to capture a greater market share through software packages. In 1994, Ni proposed to initiate a research center to design ASIC chips and to hire overseas expertise, with an annual payment totaling RMB ¥100,000. Liu rejected Ni’s proposal because a chip product would cost more than RMB ¥1,000—this exceeded the company’s financial capacity. That same year, Liu turned down Ni’s suggestion to develop digital switching products, which also required an enormous capital investment. The conflict between the two became increasingly serious. In 1995, Ni was forced to leave the board of directors and to resign from his position as chief engineer. He wrote letters to higher authorities complaining about Liu and Legend’s top management of doing business without following laws. The accusation process continued until Legend announced Ni’s firing in September 1999.

Some of the company’s R&D efforts had market potential. However, since the company did not have strong marketing and sales ability, technologies failed to bring profit. Liu reported,

Around 1990 and 1991, the 200-developer R&D team did come up with some good products. In fact, some R&D outcomes met market needs well. For example, we invested RMB ¥ 5 million in developing the multiconnectionCard, which was very good for electronic classrooms because one motherboard could have several terminals. However, we could not turn a profit from it. Instead, we lost several million [RMB] on this product. The

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72 Hewen interview, *ibid*.
73 A similar story unfolded at the Stone Group, another well-known ZGC company. There, chief engineer Wang Jizhi (王籍志), who had developed the Stone Typewriter, the company’s core products, left the company due to a conflict with the general manager.
main reason for this was that we did not do well in marketing and sales. Our existing sales force did know about selling LXCards and IBM machines, but when the new product came along, we got confused. In Legend's history, we have experienced several big crises, but none was because of the technology itself. Legend experienced big crises in 1991 and 1995. Every time, it was weak management in areas such as inventory and cost control that was responsible. In PC manufacturing, for example, excess inventory is the crucial thing because of frequent changes in component prices. If you do not have a strict inventory system, you could lose up to and over billions of dollars. Management skills, such as inventory control, are more critical than technology alone ... but Chinese firms in general are not good at management.  

After learning from bitter experiences in its early years of operation, Legend began to put enormous effort into improving the company's managerial skills. Other ZGC firms called Legend "the troop" because Liu set up strict rules for daily operations. Being late for a meeting meant having to stand aside for a while as a punishment. Legend even had its own "company song," which every employee would sing before company-wide gatherings. As one Westerner observed, the management style had the flavor of the "Chinese Communist Party in the glory days of the revolution." Yet, as Liu explained, "Many basic management rules are so natural in foreign firms. Everybody knows how to follow them, so it's not necessary to make any explicit requirement. But at Legend, we had to force people to follow some basic

74 Personal interview with Liu Chuanzhi, August 10, 1999.
business rules. It had to be strict. It's like we needed to learn how to wear a suit first, and then go with business casual.”

Legend had its own management school, which held frequent training sessions for the company’s managers and staff. Wherever one went in the company, well-trained Legend employees were ready to tell about the “three elements of management,” a “formula” summarized by Liu that comprised forming a team, formulating a strategy, and leading a “troop.” In 1999, when Legend was implementing SAP’s ERP system, Liu said, “We’d like to test our management by implementing this ERP system.” After 15 years of practice, Legend had now established its reputation in China as an extraordinarily well-organized company. In 2000, in a survey conducted by Asiamoney, Legend was listed second on a list of the “Best Managed Companies in the PRC.”

3.2.4 Organizational Evolution and Ownership Structure Change

There have been several big organizational changes in Legend’s history. In 1993, when foreign brands became dominant in China’s PC market, the company was put in a perilous situation. The majority of Legend’s key employees were former research fellows who had a difficult time doing business in a market economy.

Liu realized that the company would have little success if it continued its old practices. However, it was very difficult to enact any organizational change without infusing new blood.

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76 Chuanzhi interview, August 10, 1999, ibid.
77 Personal interview with Liu, August 10, 1998.
into the management team. Convincing founding members to go back to the second line would be difficult.

Liu decided to reengineer the company, introducing younger managers and also establishing a founder stock-option program, which was rarely seen in domestic companies at the time. As a result, many older organizational members left the management team with considerable compensation. Liu then promoted a group of young managers to critical positions, such as Guo Wei (郭为) and Yang Yuanqing, both of whom joined Legend in 1988. Later, when Yang became “the reason China’s computer industry is thriving today,” 79 Guo had significantly expanded Legend’s agent sales business.

In 1995, the collapse of memory-chip prices resulted in Legend Hong Kong sustaining RMB ¥187 million in losses. Company management was unable to cope with the situation. In 1996, there was a further loss of HK$194 million. By 1997, Legend’s stock price had dropped from RMB ¥1.3 to RMB ¥0.29 per share. Additionally, market capitalization fell from HK$1 billion to HK$230 million.

To halt any further damage, Liu released Lu Tanpin, the president of Legend Hong Kong—despite his hard work in establishing Legend Hong Kong. Then, in April 1998, he transplanted the PC manufacturing and agent sales businesses at Beijing Legend to the Hong Kong operation. By doing so, Legend was not only able to list PC and foreign products distribution on the stock market, but also gained tax exemptions for its PC operation. 80 Liu

80 Since Legend Holdings is a foreign-invested company, the effective tax rate on Legend PCs dropped from 7% to 4%.
recalled, “Like the 1995 crisis, the 1997 disaster was very serious. The company could have been completely destroyed.”

In May 2000, Legend integrated its businesses into its two largest subsidiaries. The first, Legend Computer Ltd., under Yang Yuanqing’s leadership, focused on “Internet access devices” such as PCs and networking products, and FM365.com (See Figure 3.2.1). The second, Digital China Ltd., which was formed by the merger of Legend Technology and Legend Advanced Systems, was led by Guo Wei and specialized in developing agent sales business, e-commerce ventures, and system integration. Each subsidiary was autonomous with regards to accounting and human resources. In April of 2001, Yang became the President and CEO of the Legend Group.

Ownership Structure: Legend and CSA/ICT

For a long period of time, Legend had been well known as ICT’s company. But although ICT was the founder and the supervisory body of Legend, it did not play a significant role in the company’s operation. When the company was founded in 1984, ICT offered Legend “three autonomous rights”: full authority in hiring, accounting, and business decision-making. Such freedom defined Legend as a typical state-owned, privately run company. CSA barely intervened in Legend’s operation. This autonomy provided Legend an opportunity to survive in the marketplace. For example, the company was able to build a manufacturing base in Hong Kong when it had difficulty receiving the PC manufacturing license in China.

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81 Personal interview with Liu, August 10, 1998.
82 At the same time, the company’s systems integration business was restructured along industry lines such as finance, telecom, and taxation, rather than along regional lines. Digital China soon built an e-distribution platform providing online distribution and services for foreign-brand IT products (ebridge.com.cn).
In September 1998, CAS decided to reform ICS and make it Legend's central research institute. With this change, Legend took over the responsibilities of its parent institution and Liu became the director of ICT.

\[^{83}CAS\ File\ (1998),\ 0375.\]
In 1993, CAS decided to offer Legend's employees a 35% share of the "right of allocating the income" (FenHongQuan). Legend divided this 35% share into three parts. A "founder's fund" was established using 35% of the total employee share. By offering the "founder's fund" to
16 “founding members,” Legend secured a benefit for people who had joined the company at its founding stage and allowed them hand over their positions to younger, more capable managers. The second part of the employee share was distributed to about 160 core employees who had joined the company before 1988. The rest was kept in reserve for future use. In early 1994, Zhou Guangzhao (周光召), the president of CAS, officially signed an agreement with Legend. CAS, Legend’s “Yuangu Chigu Hui (‘Committee of Legend’s Employee Share Holder’ in Chinese)”, and ICT would hold 20%, 25%, and 45%, respectively, of the “right of allocating the income” (Fen Hong Quan). At the time, Legend’s assets could be owned only by the State, not by CAS or ICT; hence, rather than a “share of equity,” the three parties could only have the right to divide the company’s annual profits. This institutional arrangement was a great political risk and, to some people, represented “the loss of state-owned assets.” Liu commented,

ICT is a great “mother-in-law.” In 1993, we were in a really bad shape … this 35% FenHongQuan not only gave our employees great incentive, but also made it possible to let young managers play important roles while older ones happily retired. This 35% motivational stock option was the material base of solving problems that we needed to solve at that time … before that, the incentive was weak, and it was hard for employees to care about the company’s performance.84

However, the ownership structure of the company and the relationship between ICT and Legend was still unclear, since the “FenHongQuan” was not a legalized property right. In

84 Personal interview with Liu Chuanzhi, August 10, 1998.
1999, responding to Legend’s persistent request to legalize its ownership structure, the
government began to make progress in changing its “right of allocating income” to equity
share. Legend finally completed its property rights reform, and changed from a state-owned
company to a joint-stock enterprise. A total of 35% of Legend’s equity was finally given to
employees, with authorization from the government.\footnote{However, the employees’ holding of the equity was not the subject to free trading.}

In a new round of economic reforms in 1999, the Chinese government requested that state-
owned sectors discontinue the pattern of “Tie Fan Wan” (life time employment). CAS thus
streamlined its staff from 1,000 to 100. Legend was called to hire the 900 research fellows
that would be laid off by CAS.

At the end of 2000, the ownership structure was as illustrated in Figure 3.2.2. Legend Group
Holdings, which was owned by CAS and Legend’s employees, held 57% of Legend Holdings
and private investors owned the rest.

\begin{figure}[h]
\centering
\begin{tikzcd}
\text{CAS} \arrow[r, bend right=45, font=ootnotesize] & \text{Legend Group} \arrow[r, bend left=45, font=ootnotesize] & \text{Legend Employees} \\
& \text{Legend Group Holdings Company} \arrow[u, bend left=45, font=ootnotesize] & \\
& \text{Legend Holdings Ltd.} \arrow[u, bend right=45, font=ootnotesize] & \text{Private Investors} \arrow[u, bend right=45, font=ootnotesize]
\end{tikzcd}
\caption{Legend’s Ownership Structure (as of the end of 2000)}
\end{figure}

Source: Legend Group (http://www.legend-holdings.com/eng/about5.html), April 2000
By the end of 2000, Legend had become the ninth-largest company on the Stock Exchange of Hong Kong, with a market capitalization of US$13 billion. It also became one of the constituent stocks of the Hang Seng Index and the London Hang Seng Reference Index. *Investor Relations*, a leading UK financial journal, ranked Legend as the “Best Asia-Pacific Company for Investor Relations in the UK Market” for 2000. In *Reuters 2000 Hong Kong and PRC Research Report*, Legend was given top ranking in 11 of 13 categories.

### 3.2.5 Internet Time

Legend’s Internet-related move can be traced back to September 1997, when the company began to distribute network products for Cisco. That same year, Legend became a Dlink distributor. In June 1999, the company launched an e-commerce Web site that linked 300 distributors with capabilities to accept online orders for PCs, and the next month released a wide range of networking products under the slogan “going for Net.”

The launch of the Tianxi series of Internet-oriented PCs in the spring of 2000 marked a major step in Legend’s transfer of its hardware success to the Internet. After releasing Tianxi, Legend’s earnings doubled in three months. Compared with US$10.5 million for the first quarter of 1999, Legend’s net income for the same period in 2000 reached US$24.5 million. Tianxi accounted for about a third of the company’s first-quarter sales. Yang Yuanqing said, “We shifted our focus to the Internet. ... We were trying to make computer products that

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86 In 1999, the number was only US$760 million. See Anthony Spaeth, “China’s Legend In the Making,” *Time Digital*, 155(18), May 8, 2000.
87 Two years later, Legend became Dlink’s exclusive distributor in China.
88 Legend data.
could serve perfectly as tools for the Internet." The development and manufacturing of Internet access devices became a major focus. In addition to PCs, Legend also developed Internet access devices such as set-top boxes, palm-sized PCs, and broadband and wireless Internet access devices. Yang reported:

We developed an Internet strategy where all of our products and services were based on Internet applications. We’ll offer our customers a complete package of Internet products and services. The future development trend for our PCs will be toward Internet-based models that are multifunctional and easy to use.  

Entering 2000, Legend carried out its Internet strategy. In March 2000, Legend and Hong Kong based Pacific Century Cyberworks Ltd. (PCCW), decided to promote broadband Internet service jointly in China. According to the agreement, Legend is scheduled to produce the Legend-Now PC, which will provide easy broadband access to the Internet through PCCW’s Network of the World (NOW), which will become an Asia-wide broadband multimedia network.

In June 1999, Legend raised more than HK$900 million on the Stock Exchange of Hong Kong. In March 2000, Legend raised more than HK$2.8 billion. The company announced that it would invest US$84.34 million in its Internet-related businesses. With sufficient cash, Legend also began its aggressive purchasing of Internet companies. In August 2000, Legend

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spent US$35.37 million to buy the Beijing-based Yestock.com, China’s first and largest security trading and mobile e-commerce website. Legend’s move to the Internet further attracted investors.

In April 2000, Legend released FM365 (http://www.FM365.com), originally an Internet connection function of TianXi, as both a Chinese Internet Content Provider as well as an Internet Service Provider. Legend prepared the launch of FM365 with substantial marketing efforts. A week before the launch date, the slogan “Who have I been longing for? Find out April 18” could be seen on billboards in Beijing, Shanghai, and Guangzhou. The slogan changed to “FM365.com” overnight. “They are attracting unbelievable attention with such suspense,” said a reporter from China ComputerWorld. The Web site was designed with news, education, entertainment, lifestyle, stock market updates, and online shopping channels. By the end of September 2000, FM365 had more than 520,000 registered users for its ISP services, with an average monthly usage time of 16 hours. Although the FM365 operation lost US$5.13 million in the first half of 2000, it promoted Legend’s Internet PC sales significantly because TianXi users were persuaded to use Legend’s connection through its PCs. In the same period, Legend’s profit had a year-to-year rise of 135.3%, reaching HK$408

92 Yestock’s main business is to provide online and wireless stock trading. It provides financial information and stock trading services through devices such as PCs, PDAs, and mobile phones. Legend offered Yestock $16 million in cash, US$13 million in Legend stock, and US$6.2 million worth of equipment. After the acquisition, Legend became the largest single investor in Yestock.com, with a 40% stake in the company. Yang Yuanqing became Yestock’s president.
93 Personal communication with an IT journalist, June 28, 2000.
million (about US$52 million). As one industrial analyst commented, “A year ago, Legend wanted to be the Dell of China. Now it wants to be China’s Dell plus America Online.”

Indeed, in June 2000, Legend and AOL Time Warner established a US$200 million joint venture to supply interactive Internet services to the Chinese market. Legend had a 51% share of the venture, while AOL had the remaining 49% stake. Each firm invested $100 million in the new company. Now the three big Internet portals, Sina, Sohu, and Netease, are watching what the shape of China’s new Internet market landscape will be on the horizon.

3.3 Peking University Founder Group Company

Peking University Founder Group Company (Founder) is a leading electronic typesetting software development company and one of the most influential domestic PC makers in China. It has evolved from Peking University’s “Xiao Ban Qi Ye” (university-run enterprise) into a well-known IT enterprise. In 1998, Founder Chinese-Language Electronic Publishing System (FD EPS) enjoyed a domestic market share of about 90% and an overseas market share of 80%. Founder EPS also has entered the Chinese language newspaper and printing industries in Hong Kong, Macao, Taiwan, North America, and Malaysia, as well as the Japanese and Korean language printing industries. Table 3.3.1. shows the company’s annual revenues.

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95 Legend data.
96 Journalist’s interview with Chong Leong, a China equities strategist at Morgan Stanley Dean Writer in Hong Kong. See Time Digital, May 8, 2000, 155 (8).
97 In English language, there are two ways of denoting the capital of China: Beijing or Peking. Since the 1980s, “Beijing” has been widely accepted. However, Beijing University still officially uses “Peking University” as its official English name.
98 See Founder archives: Wang Xuan Wen Zhai (王选文摘), and Fang Zhang Bao (方正报).
99 Founder data.
Table 3.3.1 Founder’s Revenues (in RMB ¥millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>88</th>
<th>89</th>
<th>90</th>
<th>91</th>
<th>92</th>
<th>93</th>
<th>94</th>
<th>95</th>
<th>96</th>
<th>97</th>
<th>98</th>
<th>99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>50</td>
<td>90</td>
<td>130</td>
<td>200</td>
<td>420</td>
<td>940</td>
<td>1800</td>
<td>2500</td>
<td>4000</td>
<td>6000</td>
<td>7500</td>
<td>8400</td>
</tr>
</tbody>
</table>

Source: Founder

In addition to EPS and other publishing-related software development, Founder’s core business includes PC and PC-related component manufacturing and distribution. Software development accounted for 60% of 1999 revenues, while PC manufacturing and distribution accounted for 40%. In September 2000, the Group had three public companies: Founder Holdings Ltd. and EC-Founder (Holdings) Company Ltd., which are listed on the Stock Exchange of Hong Kong (SEHK), and Shanghai Founder Yanzhong Science and Technology Group Corp. Ltd., which is listed on the Shanghai Stock Exchange (see Table 3.3.2.). Founder has been named one of “China’s Top 500 Industrial Enterprises” and one of the “National Experimental Enterprise Groups.” It has also been recognized as one of the top-six “National Technological Innovation Experimental Enterprises” and as one of the top-five “state-supported PC manufacturers.”

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100 Founder data.
101 See http://www.founderpku.com
**Table 3.3.2 Founder’s Public Companies**

<table>
<thead>
<tr>
<th>Company</th>
<th>Stock Market</th>
<th>Stock Code</th>
<th>IPO Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Founder Holdings Ltd. (Founder Hong Kong Holdings Ltd.)*</td>
<td>The Stock Exchange of Hong Kong</td>
<td>HK 0418</td>
<td>12/95</td>
</tr>
<tr>
<td>Shanghai Founder Yanzhong Science and Technology Group Cop. Ltd.</td>
<td>The Shanghai Stock Exchange</td>
<td>SSE60060</td>
<td>09/86</td>
</tr>
<tr>
<td>(Zhanghai Yazhong Enterprise Ltd.)**</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>EC-Founder (Holdings) Company Ltd. (Management Investment &amp; Technology (Holdings) Ltd.)***</td>
<td>The Stock Exchange of Hong Kong</td>
<td>HK 0618</td>
<td>09/00</td>
</tr>
</tbody>
</table>

*In March 2000, Founder Holdings Limited became the ultimate holding company of all subsidiaries previously under Founder Hong Kong Holdings Ltd.*

**In May 1998, Founder purchased Shanghai Yazhong Enterprise Ltd., the first listed company on Shanghai Stock Exchange.

***In May 2000, Founder Holdings became the controlling shareholder of a Hong Kong-listed company, Management Investment & Technology (Holdings) Limited (SEHK: 618), which was renamed EC-Founder (Holdings) Company Limited in September 2000.

*Source: Founder*

**3.3.1 Early History**

Founder’s origin can be traced back to March 1984, when seven professors at Peking University, including Zhang Yufeng (张玉峰), who later became one of the company’s key people, proposed that the university establish an enterprise. In the summer of 1985, Peking University approved the proposal and invested RMB ¥400,000 to start the Peking Like New Technology Company (Like 理科). Professor Lou Binglong (楼滨龙) was assigned as general
manager of the new company. Like’s first business was a RMB¥100,000 contract with Professor Wang Xuan (王选), who was involved in Project 748, a national research project to construct “Chinese character patterns” based on computer language. It was not until 1987 that the company consummated any other real business deals. Nevertheless, as Zhang Yufeng recalled, “In those two years, we just wandered around and nothing was done. But I learned so many things that I would never have been able to learn from reading books at school.”

In early 1987, following other ZGC startups, Zhang Yufeng and his colleagues began trading some imported PCs. However, the company’s financial situation was not good. Zhang tried hard to obtain funding, finally convincing Fu Hongjiang (傅洪江), a “peasant entrepreneur” at Yuyuantan Village, a Beijing suburban government, to invest money in the development of a “high-tech enterprise.” In May 1987, Fu agreed to invest RMB¥1.2 million to help Zhang Yufeng register another commercial entity—Beida New Technology Service Company (Beida). Beida was registered under the name “Intelligent Youth”\(^{103}\) in order to avoid paying enterprise taxes. Zhang Yufeng asked a fellow professor of Peking University, Zhang Zhaodong (张兆东), to run this company. Like most other small computer trading companies in ZGC in those days, Beida’s business went well. In only half a year, the enterprise returned Fu RMB¥20,000 and convinced him to invest another RMB¥3 million in Beida in February 1988. At the same time, the growing company was able to obtain bank loans of RMB¥15

\(^{102}\) They are: Lou Binglong (楼滨龙), Zhang Yufeng (张玉峰), Hua Wenting (花文廷), Huang Laping (黄禄平), Huang Wanju (黄晚菊), Ding Jiyu (丁瑾玉), and Lu Yongji (陆永基).

\(^{103}\) The phrase of “Intelligent Youth” comes from the Cultural Revolution, and refers high school and mid-school graduates who were sent to the countryside from the big cities. Deng Xiaoping’s reform policies included an effort to compensate the people who “wasted” their youth during the Cultural Revolution. For example, in many cases, “Intelligent Youth” were not required to pay business taxes.
million, all of which enabled Beida to trade PCs on a larger scale. At this point, Zhang Yufeng contacted Jingshan, a small Hong Kong-based family company. Jingshan’s owner and founder Zhang Xuanlong (张旋龙) came to ZGC in 1985, selling Jingshan-brand "SuperPCs." SuperPCs soon became popular in ZGC, primarily because of their lower unit price of RMB ¥ 10,000. At the end of 1987, Zhang Yufeng convinced Zhang Xuanlong to let Beida sell SuperPCs. In March 1988, Beida set up its first ZGC sales outlet, which was run by Yan Maoxun (晏懋洵), who later became Founder’s second president.

In early 1988, Like and Beida merged into the Beida New Technology Company (New Tech). New Tech began distributing SuperCards, the Chinese-Language Add-on Cards developed in Jingshan by a talented software programmer, Qiu Bojun (裘伯君). In 1991, New Tech and Jingshan jointly established the Founder SuperCard Division to develop and distribute SuperCards. SuperCard was later renamed Peking University SuperCard (BeidaSuperCard) and was equipped with WPS, a Chinese-language word processing software package. Soon, BeidaSuperCard, together with JurenCards, WangmaCards, and LegendCards, became one of the best-known Chinese-language add-on card products. By the

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104 In 1992, Zhang Xuanlong left Jingshan for Founder, becoming the president of Hong Kong Founder Ltd..
105 SuperPCs exited the market in 1989 under the pressure of clone SuperPCs in ZGC.
106 Personal interview with Zhang Xuanlong, June 16, 1999. Zhang said, “At the time, an IBM machine could be sold at RMB ¥ 30,000, and a GW0520CH PC was priced at RMB ¥ 20,000.”
107 Abbreviation of “Peking University”
109 Qiu Bojun later became the chairman of Kingsoft, one of the best-known software companies in China.
110 New Tech and Jingshan each invested $80,000 into this joint venture.
111 WPS was developed by Qiu Bojun. It later became a main competitor of MS Office in China’s market. Because it was equipped with WPS, SuperCards excelled many other similar add-on products in the market.
end of 1995, when it exited the market, BeidaSuperCard had generated more than RMB ¥ 100 million in profits.\textsuperscript{112}

In June 1992, New Tech invested US$0.5 million in a joint venture involving Founder (Hong Kong) Ltd. (Founder Hong Kong) and Jingshan. In February 1993, New Tech was renamed Peking University Founder Group Company (Founder). In December 1996, Founder Hong Kong went public on the Stock Exchange of Hong Kong.\textsuperscript{113}

3.3.2 Wang Xuan—A Contemporary Bi Sheng\textsuperscript{114}

In the early 1980s, the Chinese government invested in a series of state-run R&D projects focusing on information technologies. In 1974, the First Ministry of Machine Industry (第一机械部), the Fourth Ministry of Machine Industry (第四机械部), the Chinese Academy of Sciences (中国科学院), the Xinhua News Agency (新华社), and the State Bureau of Publishing Affairs (国家出版局) jointly proposed a research project aimed at bringing Chinese-language information processing technologies to the most advanced level. Based on this proposal, Project 748 was initiated in August 1974 under the supervision of the State Planning Commission (国家计划委员会) and the State Council (国务院). Computer-aided Chinese-language typesetting technology was one of the major areas targeted by Project 748;

\textsuperscript{112} Founder data.
\textsuperscript{113} Founder Holdings Ltd. was established on March 31, 2000, and became the ultimate holding company of all subsidiaries previously under Founder Hong Kong.
\textsuperscript{114} Bi Sheng was an ancient Chinese inventor of lead printing technology. This section is mainly based on personal interviews with Founder's PR division and various PR materials, such as Wang Xuan WenZhai (Wang Xuan's Essays), provided by the company. Details on the Project 748 are heavily drawn on Lin (1998). Also see Nan Qiang (南强): “Tiaozhan Quanwei (Challenging Authorities),” at http://gd.cread.net/cread1/net/other/04/158.htm, Wang Hongjia: “Ying Jie Zhishi Jingji,” Ziangshi Electronic Journal at http://www.ineast.com/xiangzhi/default.htm, and various newspaper articles.
it's the biggest challenge was to compress the Chinese language into computer processing format.

Wang Xuan (王选), a professor at Peking University, was a key person involved with Project 748. Wang graduated from the Department of Mathematics & Mechanics at Peking University in 1958 and stayed on as a lecturer in physics. He participated in building the RedFlag computer, one of China’s earliest mainframes, and began studying Chinese-character input methods. In 1975, Wang learned of Project 748 through his wife Chen Kunqiu (陈堃鏋), who was involved in its development. Believing that he could contribute to the project based on his knowledge of Chinese-language input technologies, Wang submitted a proposal to the university. In May 1975, his proposal was accepted and listed as one of the research topics for Project 748.

There have been four generations of development in modern typesetting technologies. In 1946, Americans invented the first modern typesetting technology, which was based on manual phototypesetters. In the 1950s, Americans developed an automatic second-generation typesetting system, using phototypesetter machines to provide fonts of characters on filmstrips. In the third-generation typesetting system, invented by Germans in 1965, representations of characters were formed by raster imaging on high-resolution cathode ray tubes (CRT). By 1975, a British company, Lanston Monotype Machine Company, was ready to release the fourth generation, a laser-driven raster-scan output device, which truly

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115 The proposal was titled “Regular and Non-Regular Strokes, Shapes and Parameters—Chinese-Language Compression Methods.”
116 CRT phototypesetters operate on a principle similar to that of television: a narrow stream of electrons analyzes an image matrix of each letter and commands the modulation of another stream of electrons onto a
combined typography and computer science through technologies such as on-board page description languages and hinted fonts\textsuperscript{117} (see Table 3.3.3.).

\begin{table}[h]
\centering
\caption{Historical Parallels between Computers and Typesetters}
\begin{tabular}{lll}
\hline
Era          & Computers                     & Typesetters                      \\
\hline
Pre-Mechanical & Counting using abacus          & Hand typesetting Letterpress     \\
               & Mechanical calculators         & Mechanized hot-metal typesetting \\
               & Babbage's Analytical Engine    & (Linotype, Monotype)             \\
Modern        &                                &                                 \\
- First generation & Vacuum tube technology     & Early phototypesetters           \\
- Second generation & Transistorized computers & Film typesetters                \\
- Third generation & LSI techniques               & CRT typesetters                 \\
                  & Mainframes and mini computers &                                 \\
- Fourth generation & VLSI                        & Laser typesetters               \\
                  & Workstations                  & Inexpensive laser printers      \\
                  & Microcomputers                &                                 \\
\hline
\end{tabular}
\end{table}


In China, newspapers still used the traditional—and laborious—lead type method to typeset pages. Thousands of Chinese characters had to be organized manually. Five prestigious institutes, including Tsinghua and Fudan Universities, were independently developing luminescent screen, which in turn leaves an impression on photographic film. Based on this technology, these typesetters can process more than 500 characters per second.
Chinese-language electronic typesetting methods for Project 748, concentrating on the second- or the third-generation technologies. However, China was weak in mechanical technologies, a requirement in second-generation typesetting. Third-generation technology, which required huge amount of storage space, did not really suit Chinese language processing. In comparison to the English language with its 26 letters, Chinese consists of 20,000 characters, at least 3,000 of which are used on a regular basis. Further, as a pictographic language, every Chinese character consists of several separate strokes. In addition, Chinese-language typesetting usually requires a more complicated approach. Taking these factors into consideration, Wang decided to leapfrog directly to the most advanced fourth-generation technology. Nevertheless, the problem of how to store Chinese-language information still remained unsolved.\footnote{118}

In 1976, Wang came up with a mathematical system for categorizing Chinese characters in which each character is broken down into several separate strokes. This method succeeded in compressing the actual Chinese font information, since only a small number of distinct contours are used in Chinese characters. However, many people thought that Wang’s method was no more than a “math game.” Luckily, Guo Pingxing (郭平欣), the leader of Project 748 as well as the head of the Computer Industry Bureau of MEI,\footnote{119} recognized the full potential of Wang’s invention and officially assigned Peking University’s Institute of Computer Science & Technology the “Chinese-language Electronic System” project in September of the year.

\footnote{117} See Founder’s PR material *Wang Xuan Wen Zhai (Wang Xuan’s Essays)* for details.  
\footnote{118} See Chapter 19, of Lin (1998).  
\footnote{119} Ministry of Machinery Industry.
In August 1977, Project 748 formed a team to build a prototype based on Wang’s method. Participants included Peking University’s Institute of Computer Science and Technology, Xinhua News Agency, Shandong Weifang Computer Corporation (Weifang), Wuxi Computer Corporation, and Hangzhou Telecommunication Equipment Corporation. The project’s simulation tests were finished at the end of 1977. In October 1978, Peking University signed a contract with Weifang to develop jointly an electronic publishing system. According to the contract terms, Weifang would produce the hardware and would also be in charge of sales and after-sale services.

When the reform policy was instituted in 1979, Britain’s Monotype Corporation began planning its “Chinese-Language Laser Typesetting System” exhibit, scheduled for October in Beijing and Shanghai. That July, Wang and his colleagues, together with engineers from Weifang, completed a prototype of their fourth-generation Chinese typesetting system, the Huaguang-I. By early 1980, the prototype terminal system was completed, exceeding Monotype’s 17-character limit by displaying 352 characters at once.\textsuperscript{121}

In November 1983, the Reagan Administration in the United States instituted a new policy that loosened controls on technology transfer to China. At the same time, the Chinese government was beginning to encourage the introduction of foreign technology.\textsuperscript{122} Consequently, in 1984, domestic newspapers and printing houses began to purchase electronic typesetting systems from overseas companies. Foreign players intensified their

\textsuperscript{120} Weifang was a state-owned computer maker established by the Shandong provincial government in 1980. In 1996, the company was renamed Weifang Huaguang Technology Corporation Ltd.

\textsuperscript{121} See Chapters 18 and 19 in Lin (1998).
push to penetrate China’s newspaper and printing industry. Hope was waning, and some participants of Project 748 left the research team. The road to becoming a commercial product was still very long for Wang’s technology. In 1982, the Publishing Bureau of the Ministry of Culture called attention to the urgent need to improve the situation of China’s publishing industry. As a result, the commercialization of Huaguang systems was listed in the fifth and sixth “National Five-Year Plans.”

In August 1982, speeding the pace of introducing new technologies to China’s printing industry, the Ministry of Culture (文化部) initiated the “Printing Technology Equipment Team,” with participants from state organizations such as the Ministry of Culture, the Ministry of Machinery Industry, and the Ministry of Chemical Industry. Many people doubted whether turning Wang’s ideas into a commercial product was realistic. Nevertheless, team leader Fan Muhan (范慕韩) offered Wang and his colleagues at the Institute of Computer Science & Technology full support and supplied them with better research equipment. In September 1983, an improved version of the system, Huaguang-II,123 was tested at Xinhua News Agency. In February 1985, Huaguang-II passed the requirement test and received certification from the State Economy Commission (国家经济委员会). Also in 1985, the government named Huaguang-II one of the top ten technologies of the year. However, the system still had major stability and size problems.

123 By summer 1983, five units of HuaguangModel II had been produced. The unit price was RMB ¥1.2 million. See Chapter 19 in Lin (1998).
In September 1986, the first commercialized product, Huaguang-III, was completed and passed its test operation at the Economy Daily. Using an imported microcomputer and a new version of Raster Image Processing System (RIP), the new model overcame its physical space issue and improved the stability. In 1986, 48 units of Huaguang-III were produced at a unit price much lower than that of overseas products. 124 Huaguang-III successfully commercialized Wang’s technology. In early 1987, Wang designed Huaguang-IV, a smaller and faster system based on large-screen typesetting technology and the personal computer. Within a year, 200 units of Huguang-IV systems had been sold, at a per-unit price of RMB ¥400,000. 125 By the end of 1989, foreign laser typesetting companies—including the UK’s Monotype; HTS, IPX, and Wang from the United States; and Xiaken and Morizawa of Japan—had all exited China’s market. Wang’s technology revolutionized China’s newspaper and publishing industry, helping it leapfrog over several generations of printing technology. Wang Xuan, who had changed the landscape of China’s electronic typesetting industry, became the “contemporary Bi Sheng.”

3.3.3 Founder: A Leading High-Tech Company

Founder Electronic Publishing System

Despite the huge success of the Huaguang system, complaints from customers regarding its quality and after-sale services began to pile up. Wang Xuan suggested that Weifang needed to improve its quality control, but the company did not take the advice seriously. Weifang also

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124 For example, compared to US$4.3 million for a Chinese-language electronic publishing system made by HTS Corporation of the United States, the price of Huaguang-III was RMB ¥1.8 million.
discontinued paying Peking University technology transfer fees of RMB ¥ 10,000 per unit.  

The university was unhappy with the arrangement. On October 10, 1988, Wang had a long conversation with Shen Zhongkang (沈忠康), the head of the “Printing Technology Equipment Team.”, and expressed his concerns regarding Weifang’s monopoly position, which had prevented further development of the product. Wang Xuan further convinced Shen that the government should let New Tech, the Peking University-affiliated company, also produce and sell Huaguang systems.

At the end of 1988, Huaguang systems were subdivided into the Huaguang and Founder series. New Tech began producing and selling Founder Electronic Publishing Systems (Founder EPS). However, the core component of the system, the RIP (Raster Image Processor) made by Weifang, seriously affected the performance of Founder EPS. In 1989, New Tech began to use components and parts ordered from Hong Kong and from a mainland military contractor. Equipped with components of the best quality available, Founder EPS soon advanced beyond Weifang’s Huaguang systems. In 1990, the affiliation between Weifang and the Institute of Computer Science & Technology came to an end. In December 1991, New Tech officially registered the Founder trademark. Wang commented, “The competition began to push both companies to try hard on quality control and after sales services.”

In 1991, 1,500 Chinese newspapers and publishing houses were equipped with Wang Xuan’s laser typesetting technology. By 1993, that number had increased to 10,000.  

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127 See Liu (1999).

years after Project 748 was initiated, all newspaper agencies at the provincial level in China had adopted either Weifang Huaguang systems or Founder EPS. By the end of 1999, the installed base of Huaguang or Founder systems had surpassed 30,000 units of Huaguang or Founder systems and total sales had reached more than RMB ¥3 billion. In 1999, Founder EPS enjoyed an 80% share of China’s publishing market and Huaguang Models held 19%. At the end of 1989, Ta Kung Pao (大公报), a popular newspaper agency in Hong Kong, purchased a unit of Founder EPS. In 1990, Founder EPS began to enter other overseas markets in Taiwan, Macao, Hong Kong, Malaysia, and North America. In May 1997, Founder and Recruit of Japan jointly established Founder Japan. Since then, Founder has further expanded its overseas operations.

In 1995, Founder Hong Kong went public on the Stock Exchange of Hong Kong. By that time, Founder Group had grown into a diversified high-tech company with 34 subsidiaries, including publishing systems and related software, computers, systems integration, fingerprint ID equipment, and multi-media teaching software.

R&D Capacity
Founder’s R&D department is very large in comparison with other Chinese high-tech companies. In 1999, the Founder R&D center employed more than 400 research staff, with 50% holding master’s degrees. It has developed multi-language typesetting software packages for both desktops (Windows) and large-scale publishing systems, as well as and Raster Image Processor (RIP) products. The center has also conducted projects on computer graphics

(129) Founder data.
processing, multimedia, office automation, geographic information systems, Optical Character Recognition (OCR), speech recognition, and Internet-related technologies. Many of the center’s R&D outcomes have won national awards (see Table 3.3.4.).

130 In 2000, Japan’s Softbank Financial Group invested 1.06 billion Japanese Yen (US$10 million) in Founder to help it expand in Japan.
Table 3.3.4 Founder’s R&D Outcomes that Won National Awards

<table>
<thead>
<tr>
<th>Date</th>
<th>Award Winning Item</th>
<th>Name of Award</th>
<th>Issuer of Award</th>
<th>Type of Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/93</td>
<td>Newspaper Layout Remote Transmission System</td>
<td>Award for Distinguished Innovation</td>
<td>Ministry of Electronic Industry</td>
<td>First Award</td>
</tr>
<tr>
<td>03/93</td>
<td>Founder Electronic Publishing System</td>
<td>Peking Municipality Award for Distinguished Innovation</td>
<td>Municipal Government of Peking</td>
<td>Special Award</td>
</tr>
<tr>
<td>10/91</td>
<td>Founder Electronic Publishing System (including nine subsystems)</td>
<td>The first China International Electronics Trade Exhibition Gold Medal</td>
<td>Organizing Committee of the China International Electronics Trade Exhibition</td>
<td>Gold Medal</td>
</tr>
<tr>
<td>06/91</td>
<td>Chinese Language Laser Typesetting System</td>
<td>State Education Commission 1990 Award for High Quality Products</td>
<td>State Education Commission</td>
<td>High Quality Product</td>
</tr>
</tbody>
</table>

Source: Founder

Since 1988, the Institute of Computer Science and Technology of Peking University had provided technologies such as Founder EPS for New Tech. For example, in August 1990, the Institute helped the company launch China’s first long-distance satellite newspaper page transmission system, which instantly sent the entire newspaper page anywhere, based on the page message description method. In August 1993, the Institute helped Founder commercialize the Founder-93 Color Electronic Publishing System by developing its core technology, a dual-processor solution that increased the speed of character generation and improved the quality of color images relative to traditional electronic color separators. In
early 1994, the Institute helped the company launch an integrated newspaper management network that would fully computerize news reporting, news editing, information retrieval, and office management for newspaper publishers.

In 1992, some people at the Institute began to feel unhappy about the relationship with New Tech, which paid back only limited transfer fees. They proposed setting up their own company to profit directly from their R&D efforts. Wang hesitated. In June 1995, he suggested to Zhang Yufeng, Founder's president, a merger between the research institute and the company. The resulting Founder R&D Center was established in July 1995. Graduate students at Peking University were the main source for this R&D force. Many of Wang’s graduate students became key developers and managers at the center. Xiao Jianguo (肖建国), later a director of the center, headed some key developmental projects, including the superscreen Chinese newspaper layout system, the colored Chinese newspaper's publishing system, and the high-end desktop publishing system. Another graduate student, Yang Zhenkun (阳振坤), developed a series of RIP products based on PostScript Level 2, which dramatically improved the cost and performance ratio of Founder EPS.

Founder Brand PCs
Through its EPS sales, the company gradually realized that many of its software clients had a strong need for PCs. In 1992, Founder set up a PC division to sell foreign-brand PCs to its EPS clients, and in August 1993, Founder became the main distributor of Digital Equipment Corporation (DEC) brand PCs. By the end of 1996, the PC division had already established 34 subsidiaries nationwide. However, the company did not have a strong incentive to develop its PC agent sales, which had an average profit margin of less than 5% compared to the 10%
of Founder EPS. Consequently, Founder could not become as well known a foreign-brand distributor as did Legend.

Nevertheless, through its agent sales practices, Founder became skilled in PC marketing, channel development, and after-sale services. In December 1995, Founder began to design, manufacture, and market its own brand of PCs and monitors. The company’s reputation helped Founder brand PCs to gain market recognition quickly, and Founder grew to be one of the top three domestic PC makers within three years. In 1998, distribution of both Founder’s own brand PCs and foreign brands accounted for 15% of the Group’s sales revenues, the second-largest earner in the company.131 Meanwhile, Founder’s PC division was beginning to enjoy the reputation of having the best management practices within the company. As a middle manager commented, “They were different from the rest of the company. They tried hard to transfer what they saw at DEC.”132

In September 1998, the Founder Group purchased a 55% share of Shanghai Yanzhong Enterprise Ltd.,133 a listed company on the Shanghai Stock Exchange, and renamed it “Shanghai Founder Yanzhong Technology Ltd. (Shanghai Yanzhong).” Founder then integrated its PC business with that of Shanghai Yanzhong and listed it on the Shanghai Stock Exchange through “buying the shell.”

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131 Founder data.
133 Shanghai Yanzhong Enterprise Ltd. was an enterprise group established in 1985. The company had a large range of products from clothing to real estate. It was listed on the Shanghai Stock Exchange in September 1986. Capitalization was about RMB72 million at the time Founder made its acquisition.
3.3.4 Challenges and Crises

With a near monopoly position in the EPS market and strong government support, Founder had enjoyed almost 10 years of the "easy life." Except for its PC division, the company had not experienced any fierce market competition. However, it faced some serious issues in the late 1990s.

Entering this period, at the high-end sector, multinational companies such as Adobe and IBM were adopting aggressive strategies that targeted China's electronic publishing market. In the low-end market, some newly established domestic companies, such as the Tsinghua Unisplendour Group, emerged as strong rivals. Moreover, the domestic EPS market was approaching the saturation point. Founder's EPS business, which typically accounted for 60% of the company's overall annual profit, began to decline dramatically. At the same time, the company's R&D force, which had brought the company past glory, had been unable to achieve any breakthroughs since the Founder R&D Center was established. As Table 3.3.4 shows, most of the R&D outcomes that resulted in awards had been accomplished before 1993. Yet, more and more resources were allocated to the company's R&D activities. Within two years, the R&D Center had expanded from 20 people to more than 500.\textsuperscript{134} The company also quickly expanded as a whole after its 1995 IPO (see Table 3.3.5). Similarly, in April 1994, Founder began to participate in the systems integration business (SI), and by the end of 1998, the SI division had reached 500 people. However, the division's revenues did not meet the level of expectations. As the company made an enormous effort targeting overseas

\textsuperscript{134} Founder data.
markets, it also made enormous investments in unrelated fields such as golf, jewelry, and chemistry.

As the company quickly expanded, it had built a huge management team. Within Founder Electronics, Founder’s flagship company, there were already 13 vice presidents. In the publishing division, there were eight vice presidents. Problems in agent management, increased overhead, and accumulated inventory became increasingly serious. In 1998, Founder’s operation costs increased from 40% of sales to the 50% of sales.\footnote{See Hai Chengyu (韩澄宇) & Wen Wangfan (文王凡) : “Guanlin Weiji Zhijie Yugao ‘Wang Xuan Shidai’ Jiang Tiqian Jieshu (管理危机直接预警‘王选时代’将提前结束 Management Crisis Indicating a Quicker End of ‘Wang Xuan Era’),” Securities Times (证券时报), July 31, 1999.} There was no effective management system. Zhang Shuren, the financial supervisor at Founder commented:

\begin{quote}
It was impossible to see which business was losing money by looking at financial records. … The company had many historical accounting issues left over. It usually took a very long time to report figures. Delayed financial reports were not able to provide first-hand data for managerial decision-making.\footnote{Ibid.}
\end{quote}

The incentive system, operating management, and other problems also plagued the company. As some of Founder’s middle managers commented,

\begin{quote}
The evaluation system was not well established and therefore employees were used to “eating from a big pot” (吃大锅饭: Chi Daguofan). The compensation system was vague; there was no clear standard for evaluating job performance.
\end{quote}
Instead of being “fazhi” (法治: managed by rules), there was a strong “renzi” (人治: managed by men) flavor in the company’s management system. It was very common for the management team to promise something in the beginning of the year and then implement nothing. For example, employees were promised housing subsidies a couple of years ago, but it did not happen until recently. Besides, the distribution system was messy ... and logistics were bad. There was always overstorage. The whole company operated at a very slow pace. We were aware of these problems and should have been able to solve them. But we did not do anything”\textsuperscript{137}

\textit{Table 3.3.5 Financials (Founder Holdings)}

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnover  (in HK$ millions)</td>
<td>1,096</td>
<td>1,483</td>
<td>1,973</td>
<td>2,164</td>
<td>1,583</td>
<td>2,088</td>
</tr>
<tr>
<td>Profit/Loss (Before Tax) (in HK$ millions)</td>
<td>143</td>
<td>(166)</td>
<td>(222)</td>
<td>180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employees (as the end of the year)</td>
<td>1,255</td>
<td>2,000</td>
<td>2,800</td>
<td>2,900</td>
<td>2,245</td>
<td>2,673*</td>
</tr>
<tr>
<td>- Sales and Marketing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>581</td>
</tr>
<tr>
<td>- After Sales Services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>502</td>
</tr>
<tr>
<td>- R&amp;D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>651</td>
</tr>
<tr>
<td>- Accounting and Finance Administration and Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>134</td>
</tr>
<tr>
<td>- Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>527</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>278</td>
</tr>
</tbody>
</table>

\textit{*As of the end of 2001, Founder Group’s employee numbers were about 6,000}
\textit{Source: Annual Reports 1998, 1999, 2000}

\textsuperscript{137} Personal interview with Wang Huiming, August 10, 1999.
The PC division, which was considered to be "well-managed," also had problems. Since sales revenues were the only criterion in evaluating the division's performance, neglected problems such as delayed payments from customer, accumulated inventory, and increased operating costs became serious. By January 1999, the division had accumulated a delayed payment of RMB ¥140 million. Founder PC's storage cycle was 29 days, which was too long compared to Legend's 18 days.¹³⁸ As a result, Feng Peiran (冯沛然), the general manager of Founder's PC business resigned and left the company. In less than a year, two of his successors also left the position.

Finally, in 1998, the longstanding problems in management and operations caused a substantial financial loss of HK$166 million (about US$20.7 million; see Table 3.3.5.). At the beginning of 1999, the company’s stock price dropped to the lowest level ever—below HK$1 (about US$0.13) per share.¹³⁹ Capitalization had dropped to HK$600 million from HK$5 billion in 1995. In addition to losses in its EPS business, Founder's PC business also reported a big loss, due in part to the negative impact of Compaq's acquisition of DEC.

In May 1999, Founder’s top management named 40-year-old Hong Kong native Li Hansheng as the president of Peking University Founder Electronics Co., Ltd. (Founder Electronics), its flagship company. Li had been working in China’s IT sectors for 12 years. In eight years at HP China, the former vice president of sales had led a 120-fold increase in the company’s sales. Li’s rich experience in marketing and sales, contrasting with Founder’s image as a

technology company, "was exactly what Founder needed." He was also the first senior executive in China to move from a multinational to a domestic company as a "paratrooper." Li began an overhaul of the company that focused on strengthening management, cutting down costs, and developing new business. He brought the R&D Center under the supervision of Founder Electronics to overcome the disconnection between R&D and marketing/sales. He also withdrew from the SI and color-printing businesses by cutting more than 400 jobs, about one-fourth of the number of Founder's employees at the time. Li also initiated frequent structural changes. Under his leadership, the Beijing headquarters integrated cash and goods flows, a responsibility formerly controlled by individual subsidiaries.

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139 On August 4, 1997, the company reached its highest price in history at HK$9.1 (US$1.17) per share. Stock Exchange of Hong Kong data.
140 Personal interview with Wang Huiming, August 10, 1999.
141 Managers with overseas background who worked for typical local companies were called "paratroopers."
3.3.5 Organization, Ownership Structure, and Top Management Team

Figure 3.3.1 Founder's Organization Structure (as of the end of 2000)

Source: Founder

Organization and Ownership Structure

In 1988, Beida, which was registered by Zhang Yufeng, and Peking University’s Like formed New Tech under the University’s supervision. Wholly owned by Peking University, Founder
enjoyed the privilege of commercializing the university’s research outcomes. This affiliation brought many other advantages to the company in addition to R&D resources. The university had various connections to top levels of the government as well as significant name recognition, which helped the company obtain business contracts and support from the state-owned sector. For example, when Founder was unable to obtain a desperately needed loan of RMB ¥100 million from banks, Peking University stepped in, handled the negotiation, and brought to the company what it needed within a day. In return, Founder paid the university an annual fee of about RMB ¥20 million, and also supplemented the stipends of some graduate students by employing them as part-time engineers. However, the tight link between the university and the company limited the latter’s autonomy in many respects. Except for Zhang Xuanlong and Li Hansheng, all members of the company’s top management team were designated by the university.

In 1999, when the company’s two rivals, Legend and Stone, began to make progress in resolving their property rights, Founder’s management also proposed to Peking University to clarify some of their existing ownership questions. This did not receive much attention. Nevertheless, in September 2000, Founder launched a stock option system as the first step in property rights reform. Under this program, Founder Holdings offered 10% of stock shares to employees who joined the company before December 21, 1995, when Founder Hong Kong went public.

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143 Most top and middle managers graduated from Peking University.
Unlike Legend, Founder's top management team had not been stable. On average, the company had changed presidents every two years since its founding. Lou Binglong was assigned by the University as New Tech's first president. In July 1992, Lou resigned and Yan Maoxun took the position. In June 1995, Zhang Yufeng, the vice president of the company, fought with Yan over whether the company should continue to support the Chinese-Language add-on card business. Zhang threatened to resign if Yan remained as president. Key managers in the company petitioned the leadership of the University to keep Zhang. A month later, Yan was forced to leave and Zhang became president. In July 1996, Zhang recommended He Wen (贺文) to fill his spot. However, He was not a good leader, and Zhang let him go three months later. Once again, Zhang became president. In July 1997, Zhang Yufeng became the chairman and Zhang Zhidong, on Zhang Yufeng's recommendation, took the president's office. Regardless of his position, Zhang Yufeng was undoubtedly the most influential man during the company's first ten years of development.

Top Management Team
In 1999, Founder experienced its biggest management shakeup to that date. The reform initiated by Li Hansheng and his paratrooper team had meant cuts in some employee's benefits, which made it difficult for the new managers to be accepted and thus make their changes. On September 11, 1999, six shareholders, including a vice president of the Founder Group and the vice president of Founder Holdings, submitted a letter to Peking University and the company's board of directors requesting an investigation of current board members and also challenging Li's appointment. On September 16, 1999, Qu Wanchun (渠万春),
representing the Dongguan Order Industrial Development Company (the second-largest shareholder of Founder Holdings), demanded of Peking University and Founder’s board of directors that Wang Xuan resign from his position as Founder Holdings chairman. Six reasons were given for this demand, including issues related to operations, development of new products, and investment strategy. Both Zhang and Wang immediately brought Founder’s problems to the public. Zhang Yufeng commented, “It’s very necessary to discuss Qu Wanchun’s request.” Four days later, a group of Founder’s senior- and middle-level managers, including Zhang Zhaodong, the president of Founder Group, Li Hansheng, the president of Beijing Founder, and Xiao Jianguo, the head of Founder R&D Center, wrote to Peking University defending Wang Xuan, and asking Zhang Yufeng to step down from his position as chairman of Founder Group and director of Founder Holdings.

144 On June 30, 1999, Founder Holdings acquired Aode and renamed it Founder Aode. Aode then became the second-largest shareholder (after the Founder Group) of Founder Holdings. Since Aode enjoyed tremendous profitability in Hong Kong’s financial industry, Founder HK’s stock prices boomed after this acquisition.
Table 3.3.6 Founder Holdings’ Executive Directors

<table>
<thead>
<tr>
<th></th>
<th>1998</th>
<th>1999</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wang Xuan</td>
<td>Wang Xuan</td>
<td>Wang Xuan</td>
<td>Wang Xuan</td>
</tr>
<tr>
<td>(Chairman)</td>
<td>(Chairman)</td>
<td>(Chairman; honorary co-</td>
<td>(Chairman; honorary co-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>chairman of EC-Founder)</td>
<td>chairman of EC-Founder)</td>
</tr>
<tr>
<td>Zhang Yufeng</td>
<td>Zhang Xuanlong</td>
<td>Zhang Xuanlong</td>
<td>Zhang Xuanlong</td>
</tr>
<tr>
<td>(Chairman of Founder Group)</td>
<td></td>
<td>(President; the Chairman of</td>
<td>(President; the Chairman of</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EC-Founder)</td>
<td>EC-Founder)</td>
</tr>
<tr>
<td>Zhang Xuanlong</td>
<td>Zhang Zhao Dong</td>
<td>Zhang Zhao Dong</td>
<td>Xiang Jianguo</td>
</tr>
<tr>
<td>(President)</td>
<td>(Resigned in April 1999 and</td>
<td>(President)</td>
<td>(President)</td>
</tr>
<tr>
<td></td>
<td>reappointed in October 1999)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zhang Zhao Dong</td>
<td>Wei Xin</td>
<td>Wei Xin</td>
<td>Xiang Jianguo</td>
</tr>
<tr>
<td>(Vice President)</td>
<td>(Appointed in October 1999)</td>
<td>(Director of EC-Founder)</td>
<td>(President of Beijing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Founder Electronics</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Company Limited and the</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Director of the Founder</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Research and Development</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Center)</td>
</tr>
<tr>
<td>Zhao Wei</td>
<td>Zhang Yufeng</td>
<td>Lo Siu Yu</td>
<td>Xiang Jianguo</td>
</tr>
<tr>
<td></td>
<td>(Appointed in April 1999 and</td>
<td>(The Chairman of Beijing</td>
<td>(President of Beijing</td>
</tr>
<tr>
<td></td>
<td>resigned in October 1999)</td>
<td>Founder Order Computer</td>
<td>Founder Order (Holdings)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>System Company Limited)</td>
<td>(&quot;Founder Order&quot;).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Xiao Jianguo</td>
<td>Zhao Wei</td>
<td>Li Hansheng</td>
<td></td>
</tr>
<tr>
<td>(The deputy director of the Founder R&amp;D Center)</td>
<td>(Resigned in April 1999)</td>
<td>(The President of EC-Founder (Holdings)</td>
<td></td>
</tr>
<tr>
<td>Zhou Ning</td>
<td>Xiao Jianguo</td>
<td></td>
<td>Company Limited.</td>
</tr>
<tr>
<td></td>
<td>(Resigned in April 1999)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jiang Bijin</td>
<td>Zhou Ning</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Resigned in April 1999)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>--</td>
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<td>--</td>
</tr>
</tbody>
</table>

Source: Founder

On October 22, 1999, the Founder Group announced its new board of directors, which did not include Zhang Yufeng and Wang Xuan. Ming Weifang, the vice president of Peking University, replaced Zhang as chairman of the Founder Group. Zhang Yufeng retained his
position as chairman of Founder Technology and Wang Xuan remained on the Founder Holdings board of directors.

At the end of 1999, Founder’s management team was faced with another organizational change when Xu Zhihong (许智宏) became president of Peking University.\(^{145}\) In June 2000, Wang Xuan was re-elected as a Founder director. In July 2000, Zhang resigned his chairmanship of Founder Technology. The earthquake finally settled when Zhang Yufeng left Founder. Table 3.3.6. illustrates the frequent changes among Founder's top management.


However, Founder was not as lucky as Legend.\(^ {146}\) Since its big loss, the company was unable to acquire money from the stock market. Yet it made its own way—"buying a shell" to go public. In May 2000, together with Yahoo! and Sunevision Holdings, Founder acquired controlling shares in Management Investment & Technology Holdings (香港荣文科技), an HKSE listed company focused on weighing scale and semi-conductor manufacturing.\(^ {147}\) By injecting its Internet-related business into this unit, Founder now had another listed subsidiary,

\(^{145}\) Che Jiaer (陈家洱) was the president before Xu.

\(^{146}\) Legend received nearly RMB ¥2.8 million from the stock market in February 2001.

\(^{147}\) Management Investment & Technology Holdings was owned by the nephew of Rong Yiren, one of the richest people in Hong Kong.
EC-Founder Co Ltd,\textsuperscript{148} which provided technologies for e-commerce development such as Internet security, mobile Internet applications, and knowledge management tools. Zhang Xuanlong, Founder Holdings president, commented, "Thanks to the successful initial public offering of EC-Founder, we now have access to more than HK$300 million [US$38.6 million] over two years to develop our Internet business."\textsuperscript{149}

3.4 China Great Wall Computer Group Corporation\textsuperscript{150}

Among the PC makers studied here, the China Great Wall Computer Group Corporation (Great Wall), which was created directly by the Fourth Ministry of Machine Industry (MEI),\textsuperscript{151} is the only state-owned and -run company.\textsuperscript{152} Great Wall was a pioneer in China's domestic PC sector and is the largest computer component manufacturer in China. Its products and services include PC manufacturing and distribution, as well as computer components such as power suppliers, monitors, boards, cards, magnetic heads, and computer software products (Table 3.4.1). By the end of 1999, the company's sales revenues had reached RMB ¥ 12 billion (Table 3.4.2). Great Wall currently has three public bodies listed on the Shenzhen Stock Exchange and one on the Hong Kong Stock Exchange (Table 3.4.3).

\textsuperscript{148} At the point of its IPO, Founder Holdings owned a 39.62% stake in the company. EC-Founder's other substantial shareholders included Ricwinco (16.31%), Yahoo! (11.41%), and Sunevision Holdings (7.94%).
\textsuperscript{149} Beijing Evening News, September 20, 2000.
\textsuperscript{150} Primary sources for this case are: Yu (1988); Changcheng Bao (长城报 Great Wall Newsletter); and personal interviews conducted in the summers of 1990 and 2000.
\textsuperscript{151} The Fourth Ministry of Machine Industry, the predecessor of today's Ministry of Information Industry, was in charge of the electronics industry. It was renamed the Ministry of Electronics Industry (MEI) in the 1990s.
\textsuperscript{152} There were several state-owned and -run companies among first-generation startups. Great Wall and Langchao Group, another PC maker founded in 1985, were the best known.
3.4.1 GW0520CH and the Early Founding Process

Great Wall traces its history back to China’s “computer fever” of the mid-1980s. When the number of IBM-compatible PCs mushroomed after IBM released its first PC in 1981, China was in the early period of post-Mao reform. At that time, policy makers were interested in developing mainframe computers rather than PCs. Nevertheless, some technocrats, such as Wang Zhi (王之), the deputy chief of the Computer Industry Administration Bureau (the Computer Bureau) of MEI, realized that China needed to develop its own PC sector.

In 1983, MEI organized a nationwide conference on PC development. After a long discussion on the potential development of a domestic PC industry, experts decided to adopt the IBM standard rather than the Japanese model, NEC980, which was considered to be the most advanced machine (equipped with pictographic language input and output technology). However, the biggest hurdle in domestic PC development was to build a Chinese-language processing system. Although hundreds attended the conference from top Chinese universities and research institutes, nobody volunteered to tackle this challenge.
### Table 3.4.1 Great Wall's Revenue by Product Type

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td><strong>MRC Products</strong>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HGAs and HSAs</td>
<td>62.0</td>
<td>52.4</td>
<td>62.5</td>
</tr>
<tr>
<td>HDD Substrates</td>
<td>0.1</td>
<td>7.1</td>
<td>2.2</td>
</tr>
<tr>
<td>VCR Magnetic Heads</td>
<td>4.6</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Sliders</td>
<td>4.6</td>
<td>0.2</td>
<td>--</td>
</tr>
<tr>
<td>Others</td>
<td>0.5</td>
<td>0.2</td>
<td>--</td>
</tr>
<tr>
<td><strong>Sub-Total</strong></td>
<td>71.7</td>
<td>63.7</td>
<td>70.9</td>
</tr>
<tr>
<td><strong>PCs and Peripheral Products and Services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCs</td>
<td>16.2</td>
<td>14.3</td>
<td>12.1</td>
</tr>
<tr>
<td>Monitors</td>
<td>5.3</td>
<td>7.6</td>
<td>6.4</td>
</tr>
<tr>
<td>Power supply Units and Casings</td>
<td>1.8</td>
<td>2.0</td>
<td>2.4</td>
</tr>
<tr>
<td>Modems and Other SMIT Products</td>
<td>1.9</td>
<td>10.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Software</td>
<td>2.0</td>
<td>1.2</td>
<td>1.9</td>
</tr>
<tr>
<td>Others</td>
<td>1.1</td>
<td>1.2</td>
<td>2.3</td>
</tr>
<tr>
<td><strong>Sub-Total</strong></td>
<td>28.3</td>
<td>36.3</td>
<td>29.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

* Magnetic Recording Component Products

Source: Great Wall

Yan Yuanchao, a thirty-two-year old technician working for the Sixth Research Institute of MEI, heard from one of his colleagues about this challenge and commented: "In fact that should not be too difficult. I myself turned a TV screen into a computer monitor with a Chinese-language display..."¹⁵³ The Computer Bureau thus asked Yan to participate in the project.¹⁵⁴ As was common in China at the time, the research conditions were poor. The entire research institute had only one IBM PC, equipped with only a 128K memory, a CGA monitor,

and a 160K disk drive. In March 1983, Yan input and displayed a single Chinese character through a software program based on the BASIC language\textsuperscript{155}. By April, Yan had written a series of programs that could generate a total of 7,663 Chinese characters. On top of his initial success, two months later Yan began to write CCDOS\textsuperscript{156}, a modified version of DOS for use in processing Chinese characters. In August 1983, CCDOS was officially released. This boosted confidence in the development of Chinese input-output technology. Soon, more than twenty different kinds of DOS based Chinese input-output products\textsuperscript{157} appeared on the market.\textsuperscript{158}

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>87</td>
<td>380</td>
</tr>
<tr>
<td>88</td>
<td>499</td>
</tr>
<tr>
<td>89</td>
<td>579</td>
</tr>
<tr>
<td>90</td>
<td>541</td>
</tr>
<tr>
<td>91</td>
<td>511</td>
</tr>
<tr>
<td>92</td>
<td>1130</td>
</tr>
<tr>
<td>93</td>
<td>1646</td>
</tr>
<tr>
<td>94</td>
<td>1841</td>
</tr>
<tr>
<td>95</td>
<td>1898</td>
</tr>
<tr>
<td>96</td>
<td>3638</td>
</tr>
<tr>
<td>97</td>
<td>8000</td>
</tr>
<tr>
<td>98</td>
<td>11100</td>
</tr>
<tr>
<td>99</td>
<td>15100</td>
</tr>
<tr>
<td>00</td>
<td>16000</td>
</tr>
</tbody>
</table>

*Source: Great Wall*

\textsuperscript{154} This project later was listed in National Six-Five Plan.
\textsuperscript{155} Basic standing for Beginner's All Purpose Symbolic Instruction Code. It is a system developed at Dartmouth College in 1964.
\textsuperscript{156} CC was the abbreviation of Chang Cheng ("Great Wall" in Chinese).
\textsuperscript{157} DOS is the acronym for disk operating system, which is most often used as a shorthand forms-DOS (Microsoft disk operating system.
\textsuperscript{158} See Liu & Zhang (1998) for details of this history.
Table 3.4.3 Great Wall’s Public Bodies

<table>
<thead>
<tr>
<th>Company</th>
<th>Stock Market</th>
<th>Stock Code</th>
<th>IPO Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Wall Technology Company Ltd.</td>
<td>The Stock Exchange of Hong Kong</td>
<td>HK 0074</td>
<td>1999/08</td>
</tr>
<tr>
<td>China Great Wall Computer Shenzhen Company Ltd.</td>
<td>The Shenzhen Stock Exchange</td>
<td>SZSE0066</td>
<td>1997/06</td>
</tr>
<tr>
<td>Shenzhen Kaifa Technology Co. Ltd.</td>
<td>The Shenzhen Stock Exchange</td>
<td>SZSE0021</td>
<td>1994/02</td>
</tr>
<tr>
<td>Hunan Computer Company Ltd.</td>
<td>The Shenzhen Stock Exchange</td>
<td>SZSE0748</td>
<td>1997/07</td>
</tr>
</tbody>
</table>

Source: The Stock Exchange of Hong Kong, the Shenzhen Stock Exchange

Yet CCDOS took up too much space; a PC based on the Intel 8088 CPU had only 4.77M capacities. Running such a software package greatly affected the PC’s speed and display quality. Yan proposed to develop a Chinese-language add-on card. In August 1984, engineers from the Institute of Computer Software under the China Academy of Science, the Sixth Research Institute, the 738 Factory, and Tsinghua University were divided into two teams. Yan and his colleagues went to Hong Kong to develop an add-on card while another team left for Tokyo to develop the Chinese-language display technology. Several months later, they released the first Chinese-language add-on card product, the GW0140Card.

Finally, in June 1985, Great Wall 0520CH PC (GW0520CH), the first IBM compatible PC designed and manufactured independently by Chinese people, was unveiled at a nationwide computer exhibition. In areas such as monitoring technology and compatibility, the GW0520CH performed better than IBM machines and the NEC 980. It also captured wide attention with its Chinese language processing capacity. In addition, the introduction of the
GW014Card instigated a big, long-lasting wave of Chinese language add-on cards entering the market (Table 3.4.4). The add-on cards business not only created a troop of domestic computer-related companies, but also, to some extent, dramatically simulated China’s overall PC sales. Most well known first-generation startups, such as Legend, Founder, and Juren, established their businesses with Chinese-language add-on cards (see Table 3.4.4.). In the US COMDEX’85, GW0520CH caught wide attention. MEI decided to create a new company to commercialize the technology.

On December 12, 1986, the Computer Industry Administration Bureau of MEI founded the China Computer Development Company (CCDC), Great Wall’s predecessor. Wang Zhi was named as general manager of this company. Many GW0520CH project team members, including the team leader, Lu Ming, became core founding members. In total, about 140 staff members were transferred from the MEI to the young company. MEI also invested RMB ¥3 million and provided facilities for the startup. CCDC had become the first domestic PC maker while other ZGC computer-related startups, including Legend and Founder, were still trading foreign-brand PCs.

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159 After 1995, due to great improvement on PC’s capacity, the add-on card market gradually declined.
160 For example, by bundling its card products to AST PCs, Legend made AST the most popular brand in China.
Table 3.4.4 Major Chinese-Language Add-On Cards Products

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Company</th>
<th>Debut Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>GW014 Cards</td>
<td>Great Wall</td>
<td>1985</td>
</tr>
<tr>
<td>LegendCards</td>
<td>Legend</td>
<td>1985</td>
</tr>
<tr>
<td>SuperCards</td>
<td>Jingshan (Founder)</td>
<td>1991</td>
</tr>
<tr>
<td>Juren Cards</td>
<td>Juren</td>
<td>1992</td>
</tr>
<tr>
<td>XiaojunCards</td>
<td>Xiao Jun</td>
<td>1991</td>
</tr>
</tbody>
</table>

Source: Various sources

3.4.2 Wang Zhi and the Great Wall Model

Like Liu Chuanzhi at Legend, Wang also received his college education at a military school. After graduation, he worked at the Computer Bureau of MEI, becoming a deputy director and an associate chief engineer. The 1942-born technocrat was the third son of Wang Zhen (王震), one of the most powerful men in the post-Mao Chinese government. His family background and his work experience provided the company with easy access to government support.

Wang had begun to think about creating a domestic PC sector in 1983. Zhu Bangfu (朱邦复), a well-known Taiwanese computer scientist, recalled his meeting with Wang Zhi:

Wang told me that he was going to initiate a PC development team, and I thought that his unique background would help him to succeed. His family was so well connected ... However, in 1983, even in Taiwan, the PC industry
had just begun. From a normal person’s perspective, Wang indeed had too big an ambition.\textsuperscript{162}

Wang’s rich government experience at the Computer Bureau cultivated in him the ability to comprehend government policies. At the same time, his participation in a series of negotiations with foreign companies such as IBM and Microsoft allowed Wang to observe how multinationals did business in China. These experiences also helped him to understand the downside of the central planning structure.

I saw a lot of problems when I was working at the Computer Bureau. As a deputy chief, I was in charge of planning. All of the computer-related projects were planned by the bureau. However, plans either did not materialize, or outcomes in excess of the demand … could not be sold out, which led to much storage.\textsuperscript{163}

The long dominance of the centrally planned economy had created a wide gap between technology and manufacturing, and between manufacturing and sales. To become more market-oriented in such an environment, Wang applied what he had learned from foreign companies. He employed a bidding method in the manufacturing of the GW0520CH PCs in order to guarantee better quality. The earliest OEM partners consisted of about 30 state-owned manufacturers, including Beijing Youxian Dianchang and Xianan Electronics

\textsuperscript{161} Wang Zhen’s other son, Wang Jun (王军), is the chairman of China International Trust & Investment Corporation, a powerful government-owned financial firm with asset exceeding RMB ¥ 35 billion.  
\textsuperscript{162} Chapter 3 in Zhu (1990).
Equipment Factory. The GW0520CH quickly reached a production capacity of 10,000 units, a
great number at the time. Only one year after its birth, CCDC had already successfully made
the GW0520CH PC one of the best-known brands in the market.

To establish an effective sales network even further, Wang adopted IBM’s model of “dealer
distribution,” a new concept to local companies. The longstanding central planning system
still held up the “integrated buy and sell” (统购统销) as the model for state-owned companies.
Wang also offered his dealers great incentives to sell more PCs by offering them rebates of up
to 25%. Within a year, the company had established business connections with eight major
distributors. By 1990, Great Wall (CCDC) had 50 distributors managed by seven regional
subsidiaries. However, conflict arose between subsidiaries and dealers since they both
engaged in PC retailing. In the 1990s, the company restructured its sales channels by creating
a chain of principal distributors who provided products to secondary distributors selling PCs
to end users. Most Chinese PC makers had adopted this model by the mid- to late 1990s.
However, Great Wall had a much smaller principal distributor network compared to Legend’s
first-layer distributor system. Unlike Legend, the company did not regionalize its principal
distributors. Nevertheless, GW0520CH’s market success effectively altered IBM’s China
strategy: the giant eventually withdraw its IBM5550 PCs, which were specially designed for
Chinese users, from the local market.166

Chang Cheng Bao (Great Wall Newsletter 长城报),
165 For more details on domestic companies’ distribution channel building, see Journal of Xiaoshou Yu Shichang
166 Ibid.
On December 12, 1988, CCDC was renamed the China Great Wall Computer Corporation (Great Wall). Great Wall continued to be an innovative state-owned enterprise. The first specialty shop in China's PC industry was Great Wall's, established in 1995. Specialty shops were opened to promote business and educate end users about “Home PCs,” a concept initiated by Legend. In addition, since clone PCs had a bigger market share than did domestic brand-name PCs, a specialty shop would help to differentiate Great Wall products from clone PCs by providing pre-and after-sales service. By 1999, Great Wall had developed more than 400 specialty shops. Later on, makers such as HP, IBM, Legend, Compaq, and Star, would follow in its footsteps and established their own specialty shops.¹⁶⁷

The company’s innovative ways of doing business became known as the “Great Wall Model,” and the company became a role model for China’s state-owned enterprises.

### 3.4.3 Government Support and Further Development

In addition to the fact that it was founded directly by the government, Great Wall’s top management had strong personal connections with top-ranked authorities. Wang Zhi’s family background and his work experience helped him to establish connections with the government. Lu Ming, who later became the CEO of Great Wall, also had close ties to the government: his father was a well-known general in the People’s Liberation Army (PLA). Among China’s computer-related startups, Great Wall has enjoyed the privilege of government support. Since the central planning economy still retained its strong influence in the late 1980s and early 1990s, institutional buyers needed quotas from the government to

¹⁶⁷ Ibid.
purchase PCs. Great Wall benefited enormously from this situation since the government usually requested that institutions buy only GW0520CH PCs.

Government connections also helped Great Wall to obtain loans from state-owned banks. Unlike its ZGC rivals such as Legend who constantly struggled against financial constraints, Great Wall easily gained financial support and had reached an annual production capacity of 20,000 units by the end of 1987, when China’s PC market was only 10,000 units per year.\(^{168}\)

Furthermore, on December 12, 1992, Great Wall secured a loan of RMB ¥287 million to expand its Shenzhen operation. This project, with a 50,468 square meter construction area, became the only major national project listed in the nation’s Eighth Five-Year Plan for PC manufacturing.

Fully supported by the government, Great Wall had become the domestic PC leader. From 1987 to 1994, Great Wall’s PC sales revenues and units sold were the highest among all the local PC makers.\(^{169}\) The first domestic-made Intel 286 processor-based PC\(^{170}\) and Intel 386 processor-based PC were all first developed at Great Wall. At the end of 1993, all Great Wall PC products were renamed Golden Great Wall PCs (GGW PCs).

This close tie with the government provided the company with a great opportunity to establish connections with top multinational companies. Many well-known foreign companies were first introduced to Great Wall by the government when they first visited China seeking business opportunities. In 1992, Bill Gates made his first trip to China during which he signed an agreement with Wang Zhi to bundle MS NT with Great Wall brand products. In May 1994,

\(^{168}\) Great Wall data.

\(^{169}\) Ibid.

\(^{170}\) Ibid.
Great Wall worked with Italian and Japanese companies to design automatic cash machines for Chinese banks. In December 1994, Great Wall cooperated with DEC to use DEC ASIC chips to develop monitors for Golden Great Wall PCs. In April 1995, a simplified Chinese version of Windows 3.2 was the outcome of the joint project between Great Wall and Microsoft, using the GW-ABC input method and the TrueType Great Wall Chinese character bank that were developed by Great Wall.

One of the biggest government support measures that benefited Great Wall was a series of arranged marriages with the International Business Machine Corporation (IBM). In its very active business endeavors in China, five out of IBM’s nine joint ventures were set up with Great Wall (see Table 3.4.5). 171

Before 1984, to prevent technology/knowledge leaks, IBM did not work with local partners. But after several years in China, IBM’s top manager began to understand the importance of Guanxi. 172 Lou Gerstner, the company’s CEO, visited President Jiang Zemin whenever in China. In 1984, IBM asked the Computer Bureau to explore China’s PC market jointly, but no progress was made. In 1988, IBM, which had dominated China’s PC market in the mid-1980s, began to lose its market share to competitors such as AST and COMPAQ, which benefited from their local agent sales partners. IBM was now forced to consider exiting the China market and transferred its Asia headquarters from Beijing to Hong Kong. Eventually, it

170 In November 1987, the GW286 PC was exhibited at COMDEX ’87.
171 IBM’s China business dates back to the 1930s, when the company sold a business computer to Beijing Union Hospital. As soon as Deng Xiaoping instituted his reform policies in the late 1970s, IBM went to China to explore business opportunities and sold a computer to Shenyang Blowers Company. In the mid-1980s, IBM set up its Beijing and Shanghai offices. In 1992, IBM established a 100% owned subsidiary, IBM China Ltd. (IBM China). In 1994, IBM moved its China headquarter from Hong Kong back to Beijing. In 1995, IBM China Research Center, IBM’s seventh big research laboratory, was founded in Beijing. By 2000, IBM China had offices and subsidiaries in eleven Chinese cities, with more than 2,000 local employees.
decided to reinforce its China operation by finding a local partner. Through its government connections, IBM was introduced to Great Wall.

The first joint venture between IBM and Great Wall, the Great Wall International Information Products (Shenzhen) Corporation Ltd. (IIPC), was established in February 1994, with an initial investment of US$10 million. This venture manufactures IBM PCs and GGW PCs for both the domestic and overseas markets. Originally, Great Wall and IBM held 51% and 49% of the equity shares, respectively. But in 1998, understanding its own weakness in manufacturing and management, Great Wall handed over 19% of its equity shares to IBM, allowing it to become the majority owner.

172 "Connections" in Chinese.
<table>
<thead>
<tr>
<th>Name</th>
<th>Founding Date</th>
<th>Local Partner (shares as of the end of 2000)</th>
<th>Main Products &amp; Services</th>
<th>Initial Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>(天津先进信息产品公司)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Software Development (Shenzhen)</td>
<td>1991</td>
<td>Shenzhen University</td>
<td>Software development</td>
<td>n.a.</td>
</tr>
<tr>
<td>Co. (万国软件开发（深圳）有限公司)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Great Wall International Information Products (Shenzhen)</td>
<td>1994</td>
<td>IBM (70%) Great Wall (30%)</td>
<td>Develop and manufacture IBM and Golden Great Wall PCs</td>
<td>US$ 10 million</td>
</tr>
<tr>
<td>Co. Ltd. (IIPC) (长城国际信息产品（深圳）公司)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beijing Xun Tong Information Network Research</td>
<td>1994</td>
<td>Jitong Telecom</td>
<td>Network technology development</td>
<td>n.a.</td>
</tr>
<tr>
<td>and Development Company Ltd. (北京迅通信息网络研究与开发有限公司)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beijing Advanced Systems Development Co.</td>
<td>1994</td>
<td>Tsinghua University</td>
<td>Software development</td>
<td>n.a.</td>
</tr>
<tr>
<td>(北京鼎新信息系统开发有限公司)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shenzhen Changke International Electronics Co.</td>
<td>1995</td>
<td>IBM (60%) Great Wall (25%)</td>
<td>Circuit-card assembly</td>
<td>US$ 13 million</td>
</tr>
<tr>
<td>Ltd. (GKI, SZ) (深圳长科国际电子有限公司)</td>
<td></td>
<td>KAIFA (15%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine Company Ltd. (蓝色快车技术服务有限公司)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shenzhen Hailiang Storage Product Co. Ltd.</td>
<td>1997</td>
<td>IBM (80%) Great Wall (10%)</td>
<td>Magneto resistive (MR) head gimbals assemblies (HGA) for IBM's hard disk drives plants</td>
<td>US$ 42.5 million</td>
</tr>
<tr>
<td>(HSPC) (深圳海量存储产品有限公司)</td>
<td></td>
<td>KAIFA (10%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM Leasing Co. Ltd (IL) (IBM 租赁有限公司)</td>
<td>1999/11</td>
<td>IBM (80%) Great Wall (20%)</td>
<td>Computer leasing services</td>
<td>US$ 20 million</td>
</tr>
<tr>
<td>Beijing Xing Chang Ke International Electronics</td>
<td>2000/08</td>
<td>IBM (70%) Great Wall (30%)</td>
<td>Design and assembly of electronic components, computers and</td>
<td>US$25 million</td>
</tr>
<tr>
<td>Co. Ltd. (GKI, BJ) (北京长科国际电子有限公司)</td>
<td></td>
<td></td>
<td>electronic products</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Great Wall, Various news sources*
At first, the factory, with an annual production capacity of only 350,000 units in 1994, seemed too big for the small market size (see Table 3.4.1.). However, IIPC began to turn a profit fifteen months after it was established.\textsuperscript{173} Since then, the factory grew at an average rate of 45% annually, primarily because of the big change in China’s PC market.

By June 1999, the joint venture’s eleven product lines had reached a combined yearly production capacity of 1.18 million units.\textsuperscript{174} When the joint venture was established, IBM PCs that were sold in China’s market had been provided by both IIPC and an IBM Australian factory. Since 1997, all of IBM’s China products were constructed in IIPC. Now IIPC became one of IBM’s five biggest worldwide manufacturing bases. All of the IBM desktops, ThinkPad’s and e-Services sold in Asia were made at IIPC. IIPC also became the biggest PC export company in China. Some industry analysts consider IIPC as a major factor in IBM’s success in China due to the fact that it made it possible for IBM to provide shorter delivery times and lower prices than can other foreign brands.\textsuperscript{175} In 1997, IIPC moved its warehouse from Hong Kong to Guangzhou, a large mainland city in the South near Shenzen. IIPC also set up a supplier hub in Guang Zhou to let its suppliers stock their parts in order to limit inventory. By 1999, IIPC was able to source 65% of its parts locally.\textsuperscript{176} This greatly helped IBM in 1998 when the anti-smuggling movement seriously affected the performance of many other foreign PC makers. This joint venture created a breakthrough to the company’s “corporate renewal.”\textsuperscript{177}

\textsuperscript{173} Many foreign operations in China were constantly losing money.
\textsuperscript{174} Great Wall data.
\textsuperscript{175} For an example, see Asia Electronics Business, February 1999.
\textsuperscript{176} IIPC could now source DRAMs from Hitachi’s 64-megabit assembly plant in the Singapore/Suzhou Industrial Park, near Shanghai. Great Wall data.
\textsuperscript{177} This point is discussed later.
The second joint venture between Great Wall and IBM, Shenzhen Changke International Electronics Company Ltd. (GKI SZ) was launched in September 1995, and targeted the circuit-card assembly business. IBM, Great Wall and KAIFA, the three joint-venture partners, held 60%, 25%, and 15% of the company's equity, respectively. The initial investment was US$13 million. The production capacity of the joint venture was 2 million electronic boards and cards. In 2000, GKI SZ contributed 10% to Great Wall's profit.178

In March 1997, IBM, Great Wall Shenzhen, and Shenzhen Kaifa Technology Company Limited (Kaifa) jointly invested US$42.5 million to create the third IBM-Great Wall joint venture, Shenzhen Hailiang Storage Products Co., Ltd. (HSPC), which manufactured magneto resistive head gimbals assemblies (MR HGAs), a key component in IBM's hard disk drive assembly plants worldwide. HSPC became IBM's biggest joint venture to date in China. IBM held 80% of the equity in HSPC, while Great Wall and Kaifa each held 10%. The factory now had an annual production capacity of about 30 million HGAs. In 1998, IBM reinvested US$70 million into the joint venture, making HSPC IBM's biggest storage products base, producing more than 70% of IBM's magnetic heads.179

The fourth joint venture, IBM Leasing Co. Ltd., was established in Shanghai in November 1999 to provide leasing services of computers and information technology equipment. The initial investment in this China's first computer leasing company was US$20 million.180 In August 2000, the fifth IBM-Great Wall joint venture, Beijing Xing Changke International Electronics Co. Ltd. (GKI BJ) was established in Beijing, producing circuit board assemblies

178 Great Wall data.
179 Ibid.
180 Ibid.
for Nokia mobile phones and systems manufacturing operation. IBM China owned 70% of the equity and Great Wall Shenzhen owned 30%.  

Great Wall’s relationship with IBM has brought it significant financial capital. By 2000, Great Wall had received a total investment of more than US$100 million from IBM. Among these joint ventures, IIPC contributed enormously. In 1999 alone, it provided 70% of Great Wall’s profit. Further, IBM-Great Wall joint ventures have strengthened the company’s reputation in the marketplace. Working with IBM has made Great Wall a different enterprise from other state-owned firms. As Wang said, “It’s not just about money and projects. When you make deals with foreign companies ... you gain a lot of valuable experience.”

By 2000, under the control and support of MEI, Great Wall had become one of China’s biggest IT enterprises offering a wide range of PC-related products (See Table 3.4.6). Unlike other domestic PC makers, Great Wall gradually transformed itself into a top PC component maker in China as a direct result of working with IBM on parts manufacturing.

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181 Ibid.
182 Ibid.
Table 3.4.6 Great Wall’s Main Products and Services

<table>
<thead>
<tr>
<th>Products and Services</th>
<th>Production Capacity (Unit/year)</th>
<th>1999 Output (Unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCs</td>
<td>1,000,000</td>
<td>650,000</td>
</tr>
<tr>
<td>Power Boards</td>
<td>20,000,000</td>
<td>12,000,000</td>
</tr>
<tr>
<td>Monitors</td>
<td>1,000,000</td>
<td>600,000</td>
</tr>
<tr>
<td>Boards and Cards</td>
<td>10,000,000</td>
<td>6,820,000</td>
</tr>
<tr>
<td>Magnetic Heads</td>
<td>1,000,000,000</td>
<td>61,000,000</td>
</tr>
</tbody>
</table>

Source: Great Wall

Great Wall has been successful in its series of initial public offering on both the Stock Exchange of Hong Kong and the Shenzhen Stock Exchange. From 1997 to 1999, four Great Wall companies went public: the Great Wall Technology Company Ltd., the China Great Wall Computer Shenzhen Company Ltd., Shenzhen Kaifa Technology Co. Ltd., and Hunan Computer Company Ltd. (See Figure 3.4.1 and Table 3.4.3).

Great Wall was also one of the first to jump into the Internet boom in China. People barely knew that Great Wall had tried to establish an Internet portal at a very early stage in China’s Internet development. It had invested in Tonghua.com (tonghua.com.cn 长春藤), a pioneer Chinese-language search engine site. Tonghua.com began to offer online search engines and a free mail system in 1997. However, when other Internet companies such as Sina, Sohu, and Netease gained popularity in the market, Tonghua’s name faded away.
Figure 3.4.1 Great Wall’s Organization Structure (as of the end of 2000)

<table>
<thead>
<tr>
<th></th>
<th>China Great Wall Computer Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>HNC:</td>
<td>Hunan Computer Company Limited</td>
</tr>
<tr>
<td>GWT:</td>
<td>Great Wall Technology Company Limited</td>
</tr>
<tr>
<td>GWSSi:</td>
<td>Great Wall Broadband Network Service Company Limited</td>
</tr>
<tr>
<td>Sowant:</td>
<td>Sowant E-commerce Co., Ltd.</td>
</tr>
<tr>
<td>IIPC:</td>
<td>International Information Products Company Limited</td>
</tr>
<tr>
<td>GKI:</td>
<td>Shenzhen GKI Electronics Company Limited</td>
</tr>
<tr>
<td>IL:</td>
<td>IBM Leasing Company Limited</td>
</tr>
<tr>
<td>HSPC:</td>
<td>Shenzhen Hailiang Storage Products Company Limited</td>
</tr>
<tr>
<td>GKI (BJ):</td>
<td>Beijing GKI Electronics Company Limited</td>
</tr>
</tbody>
</table>

Source: Great Wall

3.4.4 Challenges

As a typical state-owned company, Great Wall sacrificed its autonomy in exchange for government support. From day one, the government demanded that the company maintain a certain level of localization in its PC products. The Computer Bureau allocated component production to organizations under its direct supervision. For example, the MEI 783 factory
supplied printers, Habei Terminal Factory produced monitors, and the MEI 4505 Research
Institute provided hard disks. For a long time, the result was that Great Wall used only
domestically made components, which were usually not high in quality. The company relied
on a domestic supply of components such as motherboards, electric suppliers, monitors, and
disk drives; only CPUs were exempt from this norm. Great Wall thus became the first client
of many Chinese PC component makers had little experience in manufacturing.

By the late 1980s, local components accounted for roughly 50% of the parts used in GW
brand PCs.¹⁸⁴ In 1989, a PC product inspection held by the National Product Quality
Inspection Center found 17 errors in a GW PC’s hard disk drive and three in its floppy disk
drive. As a result, policy makers began to realize that overlocalization could hinder the
development of the domestic computer industry. In fact, this quality problem inspired Great
Wall to formulate new strategies: seeking foreign cooperation and internalizing the
production of components. As Wang Zhi recalled,

> We did everything for 0520. But later, we could not keep up with some
> components such as motherboards. … We had to import motherboards and
> other components. … It looked like a setback. but it’s too difficult for us to
> have 100% self-developed products.¹⁸⁵

Yet, quality problems also arose from sources other than the supply side. The company’s own
design had some imperfections that led to poor performance. Moreover, early market success
concealed many management problems. Since the company was highly successful financially,


140
Great Wall people paid very little attention to quality control and financial planning, and the company’s performance declined sharply during the late 1980s. Wang determined that the company needed a fundamental change. In February 1990, he initiated a “corporation renewal” to reform his organization. “We have to be ambitious and we have to get rid of complacency,” Wang declared,\textsuperscript{186} hoping that the management system could be altered to fit better into the market economy. However, Great Wall was unable to make much progress and, in 1993, Legend surpassed Great Wall as the leader among domestic PC makers.

Nevertheless, as with Founder, the government’s full support continued to create a sense of complacency at Great Wall. As Wang Zhi said:

> Since the government owns us, it was easy for our employees to think that everything was secure. We had been too self-satisfied ... Initial success made us ignore issues in internal management. ... At the time, the profit margin was really high ... selling one PC could make RMB ¥100K. We did not need any effort on cost control and we did not practice good operational management. ... To some extent, we had not really been in a market economy. Deep in our minds, we had not really changed [from what we had with the planned economy]. For example, it has been very hard for us to establish a system in which we can reallocate our human resources. More than ten years of the easy life have made “impartiality” [among employees] a sticky feature.


\textsuperscript{186} Ibid.
of our company. ... We have not been very good at marketing either. For a long time, nobody even wanted to work in the marketing division.\textsuperscript{187}

Indeed, compared with its domestic rivals, Great Wall was relatively weak in marketing and after-sales services. As one employee commented:

We have many problems in marketing and after-sales services. One of our clients told me that his company had to spend a couple of days waiting for our after-sales services. But I saw that another domestic reached their customer within just a day.\textsuperscript{188}

Many of the company’s R&D efforts did not meet market needs. Wang admitted “several failures in R&D have prevented us from keeping pace with other domestic makers.”\textsuperscript{189} At the same time, the company failed to keep people who were trying to make a difference. For instance, there was a very good marketing person at Great Wall named Chen Lianghua (陈良华).\textsuperscript{190} From 1994 to 1996, he tried to improve the company’s marketing. In 1995, particularly, Chen very successfully promoted GGW brand PCs using a variety of marketing techniques. Even people at Legend admitted that they had learned a great deal from Chen about marketing. However, Great Wall did not really appreciate Chen’s efforts, thinking instead that he and his group did not fit well into the company. At the beginning of 1998, the marketing division was phased out and Chen and his colleagues left Great Wall unhappy.

\textsuperscript{187} \textit{Ibid.}
\textsuperscript{188} \textit{Great Wall Newsletter}, Vol. 102.
\textsuperscript{189} \textit{Yu Ming}, \textit{ibid.}
\textsuperscript{190} Chen was the first to introduce concepts such as “public relations” and “specialty stores” to ZhongGuanCun.

142
A series of alliances with IBM, as well as successful IPOs, have nonetheless been ineffective in helping Great Wall regain its leadership position. A Great Wall employee said:

"I had been so proud of being a Great Wall veteran ... However, nowadays I feel differently. Now many government institutes are using other domestic brand-name PCs. Before, those agencies always purchased our computers ..."\(^{191}\)

In 2000, despite sales revenues reaching RMB ¥2.253 (an 34.5% increase over the previous year), Great Wall experienced its first financial loss.\(^{192}\) The company’s main business lost RMB ¥53 million as its profit rate decreased to 6.8% from 9.5% in 1999.\(^{193}\) Had the company had not gained an investment income of RMB ¥200 million from IBM, the loss would have been even greater. At the same time, the company’s profits came close to decreasing in comparison with the previous year. Top management admitted that the company had big problems in its evaluation systems and financial management.\(^{194}\) A lack of incentives made it very difficult for Great Wall to attract and keep talented employees. From the late 1990s, more than 80% of the company’s profit was contributed by IIPC, but most of the profit came from sales of IBM-brand PCs.

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\(^{191}\) *Great Wall Newsletter, ibid.*

\(^{192}\) In 2000, China’s PC industry experienced high growth. The total production reached RMB ¥ 280 billion, a 36.6% increase over the previous year, and sales revenues were RMB ¥215 billion, a 22.6% increased over the figures for 1999.

\(^{193}\) *Great Wall data.*

\(^{194}\) *Great Wall Newsletter, Vol. 106.*
4. THE SECOND WAVE OF CHINESE HIGH-TECH STARTUPS

4.1 The Internet Boom

On April 20, 1994, at ZGC, the NCFC network\textsuperscript{195} was connected to the U.S. National Science Foundation Network (NSFNET); it covered CAS, Peking University, and Tsinghua University. China became the 71\textsuperscript{st} members of the global Internet community. In less than four years, China’s Internet pioneers implemented various business applications based on Internet technology. Netease developed the first free Chinese-language email system; Sohu first introduced online Chinese-language directory services; and 8848 built the first online e-commerce portal. Within seven years, the number of Chinese Internet users increased from less than 10,000 to 26.5 million (Table 4.1.1.).

<table>
<thead>
<tr>
<th>Year</th>
<th>95</th>
<th>96</th>
<th>10/97</th>
<th>07/98</th>
<th>01/99</th>
<th>07/99</th>
<th>01/00</th>
<th>07/00</th>
<th>01/01</th>
<th>07/01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of User*</td>
<td>1</td>
<td>20</td>
<td>62</td>
<td>117.5</td>
<td>210</td>
<td>400</td>
<td>890</td>
<td>1690</td>
<td>2250</td>
<td>2650</td>
</tr>
</tbody>
</table>

\* CNNIC defines the Chinese Internet users as "Chinese citizens who possess private or shared computer hosts or accounts"

Source: CNNIC\textsuperscript{196} and Ministry of Information Industry\textsuperscript{197}

\textsuperscript{195} NEFC, the predecessor of China Science and Technology Network (CSTNET), is the first Internet backbone in China.

\textsuperscript{196} CNNIC stands for "China Internet Network Information Center," a non-profit organization under the administrative control of the Chinese Academy of Sciences and supervised by the Ministry of Information Industry. CNNIC became the first Internet research authority in China and released its first Semi Annual Survey Report on Internet Development in China in November 1997. CNNIC’s reports, which are issued each January and July, provide Internet-related information such as the numbers and geographical distribution of Internet users and devices.
China’s Internet-related firms emerged around 1996, when there were only 200,000 net users in China (Table 4.1.1. and 4.1.2.). The pioneers were a group of Internet service providers (ISPs). With few exceptions, such as IingHaiWei (IHW\textsuperscript{198}), most ISP startups were closely related to and controlled by state-owned telecom institutions. In June 1997, when China Telecom invested RMB ¥ 7 billion to launch an ISP site (www.169.com.cn) and immediately intensified competition, many small ISPs were forced to exit the market.

In 1998, Internet portal sites such as Sohu, Sina, and Netease emerged as new stars. They quickly gained market visibility through their unique founding processes, business models, and aggressive marketing campaigns. Although poor infrastructure at the time meant very slow connection speeds (Table 4.1.3.), and access was very expensive for Chinese net users (Table 4.1.4.), development was accelerated through the aggressive marketing efforts of newly established Internet portals. In the same year, leading foreign Internet companies such as Yahoo! and AOL launched simplified-Chinese-language versions of their sites. In two surveys conducted separately in July 1998 and January 1999, Yahoo! was ranked as the leading website in China by CNNIC. Yet by July 1999, domestic Internet companies, such as Sina, Netease, and Sohu, appeared in surveys as the most popular Web sites and have kept the reputation since (see Table 4.1.5.).


\textsuperscript{198} IHW is one of the most influential companies in China’s Internet development. Its predecessor, Beijing Technology Ltd., was founded in May 1995 by Zhang Shuxin (张树新) as a foreign-brand PC distributor. In 1996, Zhang visited the United States and sensed the potential for Internet development in China. She then transformed the company into an ISP and renamed it IHW (www.i.com.cn). In October 1996, ZhongXinFa Group, a state-owned investment company, invested in IHW, and Liang Yiping, Zhongxinfa’s president, became the chairman. In 1997, IHW spent a couple of million in RMB ¥ on marketing, but its potential Hong Kong investor withdrew its funding promise. Facing a financial crisis, IHW was forced to reduce its business. Zhang
No sector in China has ever grown as fast as has the Internet. The number of China-originated Web sites increased from less than 10,000 in July 1999 to more than 27,000 by July 2000, an increase of 268% (see Table 4.1.6.). Many Internet companies, such as Sohu, eTang, and eLong, were launched by overseas Chinese students and young professionals who returned to China. Different Internet-related business models were developed in China, aimed at the huge potential of China’s e-commerce market (see Table 4.1.7.). Business-to-Consumer and Business-to-Business portals such as 8848, Yabuy, and AsiaEC, and on-line auction sites such as Eachnet, became visible. Moreover, new industries (such as the travel industry) emerged from the Internet boom. Internet practices also brought new concepts such as Customer Relationship Management (CRM) to China’s enterprises.

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resigned from IHW in June 1998, and all the top managers (except for the CEO) resigned from the company in November 1998.
### Table 4.1.2 The Second-Generation Startups

<table>
<thead>
<tr>
<th>Firm</th>
<th>Founding Date</th>
<th>Nature of Ownership</th>
<th>Financial Founding Sources</th>
<th>Main Products/Services</th>
<th>Entrepreneurs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sina (SRS)</td>
<td>04/93</td>
<td>Privately-owned</td>
<td>Overseas VCs</td>
<td>Portal Site</td>
<td>Wang Zhidong (local entrepreneur)</td>
</tr>
<tr>
<td>IHW</td>
<td>05/95</td>
<td>Privately-owned</td>
<td>Local capital</td>
<td>ISP</td>
<td>Zhang Shuxin (local entrepreneur)</td>
</tr>
<tr>
<td>Sohu</td>
<td>03/96</td>
<td>Privately-owned</td>
<td>Overseas angels and VCs</td>
<td>Portal Site</td>
<td>Charles Zhang (MIT graduate)</td>
</tr>
<tr>
<td>AsiaInfo</td>
<td>08/96</td>
<td>Privately-owned</td>
<td>Overseas VCs</td>
<td>Internet software</td>
<td>Tian Shuoning (studied and worked in the US)</td>
</tr>
<tr>
<td>NetEase</td>
<td>05/97</td>
<td>Privately-owned</td>
<td>Personal savings Overseas VCs</td>
<td>Portal Site</td>
<td>Ding Lei (local entrepreneur)</td>
</tr>
<tr>
<td>8848</td>
<td>03/99</td>
<td>Privately-owned</td>
<td>Local capital Overseas VCs</td>
<td>B2C Portal</td>
<td>Wang Juntao (local entrepreneur)</td>
</tr>
<tr>
<td>Elong</td>
<td>10/99</td>
<td>Privately-owned</td>
<td>Overseas VCs</td>
<td>Portal Site</td>
<td>Tang Yue (studied and worked in the US)</td>
</tr>
<tr>
<td>AsiaEC</td>
<td>12/99</td>
<td>Privately-owned</td>
<td>Overseas VCs</td>
<td>B2B Portal</td>
<td>Liu Zhaochen et al. (MIT graduates)</td>
</tr>
<tr>
<td>Eachnet</td>
<td>12/99</td>
<td>Privately-owned</td>
<td>Overseas VCs</td>
<td>Portal Site</td>
<td>Tan Haisong (HBS graduate)</td>
</tr>
</tbody>
</table>

*Source: Various*
### Table 4.1.3. The Development of Bandwidth of Leased International Connections in China (Megabytes)

<table>
<thead>
<tr>
<th>Backbones</th>
<th>CSTNET</th>
<th>CHINANET</th>
<th>CERNET</th>
<th>CHINAGBN</th>
<th>UNINET</th>
<th>CNNIC</th>
<th>CIENET</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/97</td>
<td>2.128</td>
<td>18.768</td>
<td>2.256</td>
<td>2.256</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>25.408</td>
</tr>
<tr>
<td>07/98</td>
<td>2.128</td>
<td>78</td>
<td>2.256</td>
<td>2.256</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>84.64</td>
</tr>
<tr>
<td>01/99</td>
<td>4</td>
<td>123</td>
<td>8</td>
<td>8.256</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>143.25</td>
</tr>
<tr>
<td>07/99</td>
<td>8</td>
<td>195</td>
<td>8</td>
<td>18</td>
<td>12</td>
<td>--</td>
<td>--</td>
<td>241</td>
</tr>
<tr>
<td>01/00</td>
<td>10</td>
<td>291</td>
<td>8</td>
<td>22</td>
<td>20</td>
<td>--</td>
<td>--</td>
<td>351</td>
</tr>
<tr>
<td>07/00</td>
<td>10</td>
<td>711</td>
<td>12</td>
<td>69</td>
<td>55</td>
<td>--</td>
<td>377</td>
<td>1,234</td>
</tr>
<tr>
<td>01/01</td>
<td>55</td>
<td>1,953</td>
<td>117</td>
<td>148</td>
<td>55</td>
<td>90</td>
<td>377</td>
<td>4</td>
</tr>
<tr>
<td>07/01</td>
<td>55</td>
<td>2387</td>
<td>117</td>
<td>151</td>
<td>100</td>
<td>90</td>
<td>355</td>
<td>2</td>
</tr>
</tbody>
</table>

*Source: CNNIC's Survey Reports on Internet Development in China*

### Table 4.1.4 China's Monthly Internet Subscription Costs (in RMB ¥)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>744</td>
<td>744</td>
<td>444</td>
<td>294</td>
<td>222</td>
<td></td>
</tr>
</tbody>
</table>

*Source: BDA (China) Ltd.*
### Table 4.1.5 Most Recommended Web Sites By Chinese Internet Users

<table>
<thead>
<tr>
<th>Rank</th>
<th>07/98</th>
<th>01/99</th>
<th>07/99</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(<a href="http://www.163.com">www.163.com</a>)</td>
<td>(<a href="http://www.163.com">www.163.com</a>)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Shanghai Online (<a href="http://www.online.sh.cn">www.online.sh.cn</a>)</td>
<td>Guangzhou Online (<a href="http://www.163.net">www.163.net</a>)</td>
<td>Yahoo! (<a href="http://www.yahoo.com">www.yahoo.com</a>)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(<a href="http://www.163.com">www.163.com</a>)</td>
<td></td>
<td>(<a href="http://www.163.com">www.163.com</a>)</td>
</tr>
<tr>
<td>5</td>
<td>EastNet (<a href="http://www.east.com.cn">www.east.com.cn</a>)</td>
<td>Yahoo! China (gbchinnese.yahoo.com)</td>
<td>Guangzhou Online (<a href="http://www.163.net">www.163.net</a>)</td>
</tr>
<tr>
<td></td>
<td>(<a href="http://www.east.netcn">www.east.netcn</a>)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(<a href="http://www.microsoft.com">www.microsoft.com</a>)</td>
<td>(<a href="http://www.srsnet.com">www.srsnet.com</a>)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>(<a href="http://www.microsoft.com">www.microsoft.com</a>)</td>
<td>(<a href="http://www.srsnet.com">www.srsnet.com</a>)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>(netchina.com.cn)</td>
<td>Shanghai Online (<a href="http://www.online.sh.cn">www.online.sh.cn</a>)</td>
<td>(<a href="http://www.cpcw.com">www.cpcw.com</a>)</td>
</tr>
<tr>
<td>9</td>
<td><a href="http://www.download.com.cn">www.download.com.cn</a></td>
<td>Microsoft (<a href="http://www.microsoft.com">www.microsoft.com</a>)</td>
<td>Shanghai Online (<a href="http://www.online.sh.cn">www.online.sh.cn</a>)</td>
</tr>
<tr>
<td></td>
<td>(<a href="http://www.download.com.cn">www.download.com.cn</a>)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>(<a href="http://www.cpcw.com.cn">www.cpcw.com.cn</a>)</td>
<td>Netease (<a href="http://www.yeah.net">www.yeah.net</a>)</td>
<td>21 CN (21cn.com)</td>
</tr>
</tbody>
</table>

*Source: CNNIC*
Table 4.1.5 Most Recommended Web Sites By Chinese Internet Users (Continued)

<table>
<thead>
<tr>
<th>Rank</th>
<th>01/00</th>
<th>07/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sina</td>
<td>Sina</td>
</tr>
<tr>
<td></td>
<td>(sina.com.cn)</td>
<td>(sina.com.cn)</td>
</tr>
<tr>
<td></td>
<td>Netease</td>
<td>Netease</td>
</tr>
<tr>
<td></td>
<td>(<a href="http://www.163.com">www.163.com</a>)</td>
<td>(<a href="http://www.163.com">www.163.com</a>)</td>
</tr>
<tr>
<td></td>
<td>(<a href="http://www.yeah.net">www.yeah.net</a>)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sohu</td>
<td>Sohu</td>
</tr>
<tr>
<td></td>
<td>(<a href="http://www.sohoo.com.cn">www.sohoo.com.cn</a>)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Guangzhou Online</td>
<td>163 e-Post Office</td>
</tr>
<tr>
<td></td>
<td>(<a href="http://www.163.net">www.163.net</a>)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Yahoo!</td>
<td>Yahoo!</td>
</tr>
<tr>
<td></td>
<td>(<a href="http://www.yahoo.com">www.yahoo.com</a>)</td>
<td>(<a href="http://www.yahoo.com">www.yahoo.com</a>)</td>
</tr>
<tr>
<td>5</td>
<td>Capital Online</td>
<td>Capital Online</td>
</tr>
<tr>
<td></td>
<td>(<a href="http://www.263.net">www.263.net</a>)</td>
<td>(<a href="http://www.263.net">www.263.net</a>)</td>
</tr>
<tr>
<td>6</td>
<td>Yahoo! China</td>
<td>Yahoo! China</td>
</tr>
<tr>
<td></td>
<td>(gbchinnese.yahoo.com)</td>
<td>(gbchinese.yahoo.com)</td>
</tr>
<tr>
<td>7</td>
<td>China.com</td>
<td>China.com</td>
</tr>
<tr>
<td></td>
<td>(<a href="http://www.china.com">www.china.com</a>)</td>
<td>(<a href="http://www.china.com">www.china.com</a>)</td>
</tr>
<tr>
<td>8</td>
<td>21 CN</td>
<td>21CN</td>
</tr>
<tr>
<td></td>
<td>(21cn.com)</td>
<td>(<a href="http://www.21cn.com">www.21cn.com</a>)</td>
</tr>
<tr>
<td>9</td>
<td>EastNet</td>
<td>Eastnet</td>
</tr>
</tbody>
</table>

Source: CNNIC
**Table 4.1.6 Internet Development in China**

<table>
<thead>
<tr>
<th>Year</th>
<th>10/97</th>
<th>07/98</th>
<th>01/99</th>
<th>07/99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Web Site</td>
<td>1,500</td>
<td>3,700</td>
<td>5,300</td>
<td>9,906 (268%)</td>
</tr>
<tr>
<td>- Leased Line Connections</td>
<td>--</td>
<td>325,000</td>
<td>400,000</td>
<td>760,000</td>
</tr>
<tr>
<td>- Dial-up Connections</td>
<td>--</td>
<td>850,000</td>
<td>1,490,000</td>
<td>2,560,000</td>
</tr>
<tr>
<td>- Both</td>
<td>--</td>
<td>--</td>
<td>210,000</td>
<td>680,000</td>
</tr>
<tr>
<td>Computer Hosts</td>
<td>299,000</td>
<td>542,000</td>
<td>747,000</td>
<td>1,460,000</td>
</tr>
<tr>
<td>- Leased Line Connections</td>
<td>--</td>
<td>82,000</td>
<td>117,000</td>
<td>250,000</td>
</tr>
<tr>
<td>- Dial-up Connections</td>
<td>--</td>
<td>460,000</td>
<td>630,000</td>
<td>1,210,000</td>
</tr>
<tr>
<td>Total Capacity of Bandwidth of Leased International Connections (in megabytes)</td>
<td>25.408</td>
<td>84.64</td>
<td>143.256</td>
<td>241</td>
</tr>
</tbody>
</table>

*Source: CNNIC*
Table 4.1.6 Internet Development in China (Continued)

<table>
<thead>
<tr>
<th>Year</th>
<th>01/00</th>
<th>07/00</th>
<th>01/01</th>
<th>07/01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Web Site</td>
<td>15,153</td>
<td>27,289 (275%)</td>
<td>265,405</td>
<td>242,739</td>
</tr>
<tr>
<td>- Leased Line Connections</td>
<td>1,090,000</td>
<td>2,580,000</td>
<td>3,640,000</td>
<td>4,540,000</td>
</tr>
<tr>
<td>- Dial-up Connections</td>
<td>6,660,000</td>
<td>11,760,000</td>
<td>15,430,000</td>
<td>17,930,000</td>
</tr>
<tr>
<td>- Both</td>
<td>1,150,000</td>
<td>2,560,000</td>
<td>3,430,000</td>
<td>4,030,000</td>
</tr>
<tr>
<td>Computer Hosts</td>
<td>3,500,000</td>
<td>6,500,000</td>
<td>8,920,000</td>
<td>10,020,000</td>
</tr>
<tr>
<td>- Leased Line Connections</td>
<td>410,000</td>
<td>1,010,000</td>
<td>1,410,000</td>
<td>1,630,000</td>
</tr>
<tr>
<td>- Dial-up Connections</td>
<td>3,090,000</td>
<td>5,490,000</td>
<td>7,510,000</td>
<td>8,390,000</td>
</tr>
<tr>
<td>Total Capacity of Bandwidth of Leased International Connections (in megabytes)</td>
<td>351</td>
<td>1,234</td>
<td>2,799</td>
<td>3257</td>
</tr>
</tbody>
</table>

Source: CNNIC

Table 4.1.7 E-Commerce Spending (millions of US$)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>8</td>
<td>42</td>
<td>182</td>
<td>583</td>
<td></td>
</tr>
</tbody>
</table>

Source: Baskerville Communications, CLSA Global Emerging Markets

Under the supervision of the highest administrative body, the State Council, the Ministry of Information Industry (MII) is directly responsible for China’s Internet development. Several other administrative bodies are also involved in regulating different aspects of Internet-related businesses: the State Secrets Bureau (SSB) is responsible for the safety of state secrets; the Ministry of Public Security (MPS) is in charge of network security; and the State
Administration for Industry and Commerce (SAIC) takes care registering Internet companies. Since the functions of these departments sometimes overlap, it is generally difficult to define exactly which department is responsible for a given area.

Although the Chinese government may fear that the free flow of information could threaten its effective control over society, there was actually little government meddling in the early development of the Internet market. This was mainly because the market developed much more quickly than did policymakers' decisions. Besides, the government has been keenly aware that new information technology is key to China's economic future. In 1994, the government loosened regulation in the telecommunications sector and ended the state monopoly by introducing a third telecommunications company, Jitong Telecommunications Co. Ltd., to compete with China Telecom and China Unicom. The government also has been working on infrastructure improvement. MII owns and governs 95% of the mobile telecommunications network and 99% of the fixed telecommunications network of China Telecom, which owns China Public Computer Network (CPCN, or Chinanet.com), the country's major Internet backbone. In 1993, the Three Golden Projects was launched to establish a nationwide Internet infrastructure. The government has committed to promoting the Internet throughout China by continuously reducing Internet fees. For example, in March 1999, China Telecom reduced Internet fees from the original RMB¥100 every six hours to RMB¥4 per hour. To accelerate development, the government declared 1999 as the Year of the Internet, with the aim of connecting 80% of government institutions by 2000.
The Government has issued some regulations, such as “China Computer Internet Network Regulation (Draft) (中华人民共和国信息网络国际联网管理办法),”\(^{199}\) “China Internet Domain Registration Regulation (中国互联网络域名注册暂行管理办法),”\(^{200}\) “International Internet Safety Regulation (计算机信息网络国际联网安全管理暂行办法),”\(^{201}\) “China Telecommunication Regulation (中华人民共和国电信条例),”\(^{202}\) and “Online Information Services Regulation (互联网信息服务管理办法).”\(^{203}\) However, regulation has always been volatile. For example, when the “Big Three” Internet portals filed with the U.S. Securities and Exchange Commission (SEC) to prepare their initial public offerings (IPOs) on NASDAQ in 2000, the government made additional requirements be fulfilled and thus caused delays in the companies’ public listing. In September 1999, Wu Jichuan (吴基传), the Minister of MII, was quoted as saying China’s Internet-related businesses could not be financed or operated by foreign entities, which and this raised enormous concerns among Internet companies and foreign investors. Despite this strong signal, Yahoo! launched Yahoo! China, a joint venture with Founder, that same month; two months later, Sina.com announced a new round of financing of US$60 million from foreign investors.

Since the government did not know exactly how to handle the new sector, Internet companies have been able to participate in the process of formulating regulations. “They invited me frequently to discuss policy making issues,”\(^{204}\) Sohu’s Founder CEO Charles Zhng says. For example, when the authorities had doubts about Internet companies’ online advertising

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199 This is China’s first Internet-related law, released by the State Council in January 1996.
200 Released by the State Council in May 1997.
201 Released by the Ministry of Public Safety in December 1997.
202 Released by the Ministry of Information Industry in August 1999.
203 Released by the State Council in September 2000.
businesses, Zhang tried to convince the bureaucrats that "traditional media and the Internet are different things, so we should be treated differently."

As a result of negotiations, the State Council Information Office in December 2000 gave official approval to Beijing Sohu and other Internet companies to develop online news dissemination services; and the Beijing Telecommunications Administration granted Telecommunications and Information Services Operating Licenses to companies. In summary, incomplete laws and regulations have meant both uncertainties and free space to develop for Internet startups.

Unlike first-generation high-tech startups, many Internet entrepreneurs have been able to pursue their plans with the assistance of various forms of overseas venture capital. For example, in the beginning of 1999, Sina gained US$30 million soon after its establishment; Sohu has been supported by foreign capital since its founding; and in September 1999, Sparkice, a well-known chain of Internet cafés, received second-round financing of US$75 million. Overseas companies, such as International Data Group (IDG), Microsoft, IBM, Softbank, Pacific Century Cyberwork (PCCW), Intel, Walden International Investment Group (Walden), and Hikari Tsusin, have been among the most active venture capitalists in China. For example, IDG entered China's market in the beginning of the 1990s and has committed to investing a total of US$1 billion in Chinese high-tech companies. There are also some local venture capital companies in the market. By 2000, there were about 40 local venture capital companies, with nearly RMB10 billion in total capital.

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204 Personal interview with Charles Zhang, December 18, 2001.
205 Zhang interview, ibid.
206 By 2000, IDG had invested in nearly 200 domestic high-tech firms, including software, Internet, and other types of high-tech companies. IDG data.
The peak of China's Internet startup boom was marked by initial public offerings on NASDAQ in 2000 of companies such as Sina, Sohu, and Netease. Before the NASDAQ began its tumble in March 2000, Chinese Internet-related companies had enjoyed high valuations. For example, by the beginning of April 2000, China.com had risen 1100% from its first listing. The Hong Kong-based China.com's successful IPO in July 1999 made NASDAQ the dream market for both Chinese entrepreneurs and international investors. Although it is hard to get approval from Chinese authorities to go abroad, more than twenty Chinese Internet firms had applied to be listed on overseas stock exchange markets by March 2000.

4.2 Sina.com

Sina.com (Sina) was created by the December 1, 1998 merger of Stone Rich Sight Information Technology Company Ltd. (SRS) of Beijing, a typical ZGC software company, and Sinanet.com of Sunnyvale, California, the biggest Chinese-language portal in North America. The company offers a global network of branded online content and services in China, Taiwan, Hong Kong, and North America. As of June 2000, Sina counted 7 million registered users globally and more than 34 million average daily page views (see Table 4.2.1). Partially because its strong sales in software products, the company enjoys the most

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208 AsiaInfo (ASIA) Holding Inc, a network services company, and UTStarcom (UTSI), a communications equipment maker, also went public on NASDAQ in 1999.
209 Similarly, UTStar.com, backed by Softbank, and Asiainfo, another Chinese Internet company, saw their stock prices increase by 258% and 296%, respectively, on their first day of listing.
210 China.com is the first Asian Internet company listed on the NASDAQ. But it has consistently ranked far lower in popularity than have other major Chinese portal sites such as Sina, Sohu, and Netease.
211 Sinanet was originally headquartered in Cupertino, California.
significant sales revenues among domestic Internet companies. It was ranked for the fifth time as the top portal site in China by CNNIC.\textsuperscript{213} Shortly after its establishment, Sina’s former CEO James Sha outlined the company’s ambition to

make its brand ubiquitous and synonymous with the Chinese Internet. If AOL and Yahoo dominate today among the 500 million or so English-speaking population, Sina.com intends to be the number-one Internet brand among the 1.5 billion Chinese in the world.\textsuperscript{214}

\begin{table}[h]
\centering
\caption{Sina’s Revenue and Loss (in US$ million; Year Ended June 30)}
\begin{tabular}{lrrrrrr}
\hline
\hline
Revenues & 0.377 & 0.430 & 0.942 & 2.499 & 2.827 & 14.2 & 26.7 \\
Advertising & 0 & 0 & 0 & 0 & 0.561 & 11.0 & 23.4 \\
Software Products & 0.377 & 0.430 & 0.942 & 2.499 & 2.248 & 2.9 & 2.3 \\
E-commerce & 0 & 0 & 0 & 0 & 0.018 & 0.21 & 1.0 \\
Net loss contributable to ordinary shareholders & 0.150 & 1.13 & 1.868 & 0.253 & 9.394 & 51 & 36.4 \\
\hline
\end{tabular}
\end{table}

Source: Prospectus, Financial Reports


4.2.1 Wang Zhidong and Stone Rich Sight

Among the three best-known Internet portals in China, Sina is the only one that is closely connected with first-generation companies. Wang Zhidong (王志东), co-founder of Sina, was a well-known first-generation software programmer and entrepreneur in ZGC. He graduated from Peking University in 1988. Although he majored in radio electronics, Wang had been interested in computer technologies throughout his college life. After graduation, he joined a milk product company in a Beijing suburb and began his first job as a technician. However, he took a long-term leave and spent all of his time wandering in ZGC. Many first-generation high-tech Chinese entrepreneurs had already created their legendary startups there, and it was the ideal place for Wang to seek new opportunities. Soon thereafter, he began working at a small PC trading company, a typical ZGC startup. While fixing and selling computers for the company, Wang began to localize some imported software packages. The Chinese version of AutoCAD, a widely popular graphics design application, was a direct result of his undertaking. At this time, Liu Chuanzhi, Wan Runnan, Wang Xuan, and other famous first-generation Chinese entrepreneurs were on their way to their big successes.

One day, a customer approached Wang with a problem: installing two different typesetting systems, Founders' and Stone 4S, on the same machine. Much to the customer’s

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216 In June 2001, Wang was removed as CEO by the Sina board.

217 Former president of Stone Group.

218 The Stone 4S typesetting system was released by Stone Group in September 1987.
satisfaction, Wang decoded the Founder system with relative ease. Founder’s managers happened to hear about this and were amazed by Wang’s technical talent. In 1989, they hired him as a programmer.

In his spare time, 22-year-old Wang developed the BDWin system, the first Chinese language-writing program to use the Microsoft Windows (Windows 3.0) platform. In October 1990, he presented Founder’s top management with his package; however, the company’s decision makers did not show much interest in the product until a couple of other similar products began to gain popularity by the end of 1990. In July 1991, Wang attended the first nationwide symposium on Microsoft Windows-related products and presented his BDWin system, which caught the attention of the audience. Within a couple of months, Founder had sold hundreds of copies. Nevertheless, Wang did not feel that Founder could give him the necessary understanding and support to pursue his goals in more advanced technology. In December 1991, he left Founder, planning to emigrate to Singapore.

While waiting for his visa to Singapore, Wang wrote another Chinese-language input system for Microsoft Windows, ChineseStar. He Zhiqiang (贺志强), a classmate from Peking University, convinced Wang to stay in Beijing to start a company with his new product. In April 1992, at age 24, Wang co-founded a software company known as Beijing Suntendency Electronic Information Technology Research Inc. (Suntendency). The core product was ChineseStar. He Zhiqiang, provided the seed capital and became president of the company; Wang was vice president and chief engineer. The company’s initial plan of the company was straightforward: to build a reputation, gain capital from the software business, and then reinvest these earnings in the then-booming real estate market. However, while ChineseStar
was making significant profits for the company, the real estate business was no longer booming.

As with many other ZGC firms, two key people started Suntendy: one providing capital and the other providing technological expertise. As soon as the company began to gain financial strength, conflict between technician and manager began to surface. Wang and He had fundamental disagreements over the direction of the company’s development. On August 13, 1993, Wang left Suntendy.

Wang then met Yan Yuanchao, one of the best-known among China’s first-generation programmers. Based on their strong shared technical backgrounds, Wang and Yan decided to collaborate. Their first initiative was to form the Chinese Software Development Association, which aimed at developing a standardized Chinese platform for Windows applications. However, most influential IT firms such as Founder, Legend, Great Wall, and Chinasoft did not respond to their suggestion. Only the Stone Group showed interest. Unlike Founder, Legend, and Great Wall, which were either state-owned companies or had close relationships with state-owned institutions, Stone was a private company—which gave it the advantage of greater flexibility. Moreover, as the first ZGC high-tech firm with an IPO in Hong Kong, it had strong financial backing. Wang asked Stone for at least HK$5 million in funding, and proposed that the new firm should specialize exclusively in software development. Wang also insisted on allocating to the management a certain amount of equity. Surprisingly, Duan Yongji (段永基), president of the Stone Group, agreed to all of Wang’s requests.

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219 See the case of Great Wall in Chapter 3.
In December 1993, the Stone Rich Sight Information Technology Co. Ltd. (SRS) was founded. Wang and the Stone Group had 20% and 80% of the equity shares, respectively. The new company began to develop the Chinese-language overlay for Microsoft Windows—RichWin Chinese Language Platform (RichWin). Wang and his seven programmers wrote a million lines of code in just four months. In March 1994, SRS released RichWin. However, market tests showed that the software contained too many unwanted features. Many users criticized the product as “heavy software” and “too advanced.” Nevertheless, by 1998, 800,000 copies had been sold.

Together with companies such as Kingsoft and USoft, SRS had become one of the most famous Chinese software companies. Wang gradually realized that technology alone couldn’t beat the competition; instead, business sense is more critical for creating a successful company. Wang decided to accommodate actual market demands. As he recalled:

Till the end of 1995, we had focused on technology itself. In 1996, I began to think about changing the direction to focus on users and the market. This change is difficult for me. Since I knew about the existing path much better ... if I chose the second path, I got to deal with many issues from the market. I had to face many challenges.

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220 Stone Group was first listed on the Stock Exchange of Hong Kong in August 1993.
221 See “Jishu Zhuyi Shi Weixian De” (技术主义是危险的 Technologyism is dangerous)” in Li Peng & Wang Xing (李鹏 & 王星); “Shenshi Xinlang: (审视新浪 Investigating Sina)”, Sanlian Shenghuo Zhoukan (三联生活周刊), August 2000.
222 Ibid.
223 Ibid.
4.2.2 The Birth of Sina

Wang Zhidong went online for the first time in October 1995, when he visited Silicon Valley looking for venture capital. During his visit, he could sense the impact of Internet technology. In late 1995, SRS received an Internet account from the CAS Information Center. In February 1996, Wang attended an investment conference in the United States, where he met Daniel Mao (茅道林), vice president of California-based investment firm, Walden International Investment Group (WIIG). Born in Shanghai, Mao held a bachelor’s degree from Shanghai Jiaotong University and a master’s degree from Stanford University. At the time, Mao was in charge of Walden’s investment in China, with an available fund of US$1 billion. By the time he met Wang, Mao had already invested in more than 20 local companies. He suggested to Wang that SRS should begin its Internet-related businesses. At the same time, some overseas Internet companies were approaching Wang Zhidong, asking if he could make his RichWin package simpler for Internet users.

In April 1996, Wang Zhidong established the International Internet Division. Two twenty-four-year-olds, Wang Yan (汪延) and Li Songbo (李嵩波), were in charge of the four-person division, which on April 29 launched Stone Rich Sight Net (SRSNet, or www.srsnet.com). The goal was to help the firm with its marketing and sales activities. In June 1996, the newly developed RichWinforInternet4.3 Beta1, a software package that allowed users to view and input Chinese on the Internet, was put on srsnet.com for testing and free downloading. In October 1996, the U.S. modem manufacturer Hayes began to bundle RichWinforInternet with its modems sold in China. By December, more than 100,000 net users had downloaded the
software and participated in the testing of four Beta versions of RichWinforInternet4.3. In the beginning, some people at SRS thought that the International Internet Division was Wang's personal "toy." However, they soon realized that the website had become a strong tool for improving the company's public relations and sales.

At the same time, the International Internet Division also tried other Internet-related businesses. For example, it helped Legend LCS with its Legend-PC.com, and established Internet/Intranet for the Stone Group in 1997. In May 1997, SRS was one of a very few Chinese companies to participate in the Beijing International Internet Technology Conference. That July, cooperating with Sun, SRS established an SRS/SUN Java LAB in Beijing to develop Chinese-based Java applications. SRS was gradually transforming into an Internet-related company. Daniel Mao commented:

In 1996, we suggested to Wang that Stone Rich Sight should turn itself into an Internet software development firm, rather than a traditional software firm for PCs. He then immediately established the Internet division. Wang Zhidong does have strategic vision and execution capability.226

In early 1995, three Taiwanese Stanford graduates, Jack Hong, Benjamie Tsiang, and Hurst Lin, established Sina Media Corp. to operate a portal called Sinanet.com (Huayuan in Chinese). The company was located in Cupertino, California. Sinanet was designed to bring news and information from Taiwan to a targeted audience of ethnic Chinese in North

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224 Daniel Mao joined Walden in 1993 and later became the investment firm's vice president. He joined Sina in early 1999 as the chief operations officer.
America. The company soon began to face a financial shortfall. An investor introduced the founding team to Daniel Chiang (姜丰年), who was the founding CEO of TrendMicro Inc., which provided network anti-virus and Internet security software and services. Chiang, born in Taiwan, held a bachelor’s degree in political science from Taiwan Politics University and a master’s degree in political science from the University of Texas.

Chiang became Sinanet’s CEO in July 1996. Under Chiang’s leadership, Sinanet logged 190,000 registered users and more than 1 million daily hits. Chiang also launched a Taiwan version in October 1998. To keep operations going, Sinanet’s co-founders were forced to turn to family and friends for financial support. “1995 and 1996 were lean years,” Chiang told the press. Fortunately, in 1996, Chiang obtained significant financial support from WIIG.

In August 1998, Daniel Mao lined up a number of Internet companies for Wang to visit in the Silicon Valley, including Sinanet. When Wang returned to Beijing, Mao suggested that Chiang and Wang meet to explore business opportunities in China. On September 26, Chiang met with Wang and proposed that Sinanet and SRS merge to create the biggest Chinese-language site in the world. Wang understood that Sinanet had a good reputation among overseas Chinese and richer Internet operating experience, but he was worried that SRS would only be a small portion of the new firm.

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227 Sinanet has long been viewed as unfriendly to the Chinese government, as evidenced by the fact that its home page was blocked much of the time in China.
228 Chiang had founded QuShi Software, which had its IPO in Japan.
229 Chiang was still vice chairman of TrendMicro when he came to Sinanet.
231 Ibid.
In October 1998, during a Goldman Sachs' "Internet in Asia" conference in Singapore, Chiang spoke privately with Charles Zhang, the founder and CEO of Sohu.com, about the possibility of a merger between the two companies. Zhang took no action on Chiang's suggestion. Meanwhile, Wang Zhidong opened negotiations with Sinanet, although he still had not make up his mind about the merger. "Unlike me, Wang Zhidong acted quickly," Zhang commented about this deal.232 To persuade Wang, Chiang even gave up an investment of US$15 million offered by a venture capitalist. During the negotiations, Wang raised the valuation of SRS to US$30 million. Chiang accepted the offer, since SRS had shown a 250% growth rate in the first half of 1998. After nine days of negotiations in the United States, the two sides reached a merger agreement on October 27, 1998. Sinanet agreed to be purchased by SRS.233

There was a catch: the merger was "illegal," since neither firm had obtained formal approval from its principal owners. When Wang returned to Beijing, many of the SRS board members expressed concerns about the deal. Robertson Stephens also thought that it would be difficult for SRS, a traditional ZGC software firm, to work with Sinanet, a U.S.-based Internet company. There was a concern that it would be difficult to overcome the cultural gap between Taiwan and Mainland China, and between Asia and the United States. Another notable source of negative opinion was that Wang had no experience in managing a multinational firm. Further, Zhang Shuxing, the former CEO of the most famous Chinese ISP, IHW (a pioneer of China's Internet startups), had recently resigned because of the failure of IHW's ambitious Internet development plan. His resignation had shocked China's Internet market. Sina's plan

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232 Personal interview with Charles Zhang, October 26, 2001.

233 Li Peng & Wang Xing(李鹏&王星), ibid.
of establishing branches in Beijing, Taipei, and San Francisco seemed to repeat the history of IHW's overly ambitious strategy.

Eventually, Wang convinced the board of directors. On December 1, 1998, Sina.com was officially founded from the merger of SRS and the well-known overseas Chinese-language portal, Sinanet. Daniel Chiang became chairman and CEO; Wang was appointed as president. SRS managers took positions in finance and technology in the new firm. Wang named the new company Xinlang (新浪) in Chinese, which means "the new wave."

The new company's goal was to serve Chinese Internet users around the globe. Unlike its Chinese rivals, such as Sohu and NetEase, Sina targeted users not only in Mainland China, but also Chinese in Taiwan, Hong Kong, and North America, where Internet use was expected to grow exponentially. Sina by now had different destination websites: North America (www.sina.com), Mainland China (www.sina.com.cn), and Taiwan (www.sina.com.tw). Later, in July 1999, Sina launched a Hong Kong destination website (www.sina.com.hk).

Although much of revenues were expected to come from advertising, the Internet advertising market in China was still in its infancy. Hence, RichWin was still seen as one of the core products of the company after the merger, and revenues from RichWin were still a significant source of operating capital. In 1999, software sales revenues continued to account for a great proportion of the overall revenues (see Table 4.2.1), and many Internet functions were added to the newest version of RichWin 2000.
4.2.3 Cultivating Capabilities: From www.srsnet.com to www.sina.com

Wang Yan and Li Songbo were close friends as high school classmates. After graduation, Wang Yan went to University of Paris, where he majored in political science, and Li Songbo enrolled at Beijing Polytechnics University (北京工业大学) to study electronic engineering. Wang Yan started some computer-software-related businesses while pursuing his college education in Paris. Wang Yan became acquainted with Wang Zhidong in 1991. Two years later, he became the general sales agent for Wang Zhidong, distributing Chinese Star and then RichWin in Europe. In 1995, when Wang Yan came back to Beijing for his summer vacation, he and Li Songbo, who had just finished college, began contemplating their futures. They were both enthusiastic about computer technologies and felt they should start a software-related business, particularly with multimedia technologies.

Wang Yan’s grandfather was an academician at the China Academy of Science (CAS), where he had a wide network of connection. He provided an opportunity for Wang Yan and Li Songbo to meet with staff at Zhou Peiyuan Fund Network Center (周培源基金委员会 ZFNC), a state-owned funding organization under CAS supervision. That meeting resulted in an invitation from ZFNC for Wang Yan and Li Songbo to design a CD-Title introducing the organization’s ISP operation. The two began work on the project, which introduced them to the new world of the Internet. Once they realized what the Internet could accomplish for them, they were fascinated by the technology’s potential. At the time, going online was very difficult for the average Chinese person. However, Wang Yan and Li Songbo were privileged to receive an Internet account from ZFNC.
When Wang Yan returned to France after the summer, he and Li began to spend a lot of time chatting with each other over the Internet. They then created a homepage at ourworld.compuserve.com, a website owned by CompuServe, an Ohio-based computer time-sharing service. They gave their homepage a big title—"Internet China," dreaming of conducting something big through the Internet. Li Songbo described their excitement: "We felt a window suddenly opened widely in front of us ... and we saw a sea, a sea without boundaries ... we felt that we could do so many things through the Internet." However, they were not sure about what exactly to do with their homepage. They first put on it some website visiting statistics, which Wang Yan had found from various sources. They then wrote an introduction on the website to Internet development in China, and named a couple of domestic ISP companies. "‘Internet China’ was the only Chinese homepage in Ourworld at the time," Li recalled:

Since then, I surfed on the Internet everyday ... first I used Mosaic, then switched to Netscape. Wang Yan kept sending me some freeware packages from Paris, so I was able to learn how to write Internet applications. But I think that the technology itself was kind of easy ... One just needed the access to tools.\(^{234}\)

After awhile, Wang Yan and Li Songbo began to think seriously about starting some sort of Internet-related business together. Their first thought was that the ability to read Chinese-language content on the Internet was a basic need for the Chinese-speaking population. They were eager to start a company; however, they lacked the necessary seed capital. They turned

\(^{234}\) Personal interview with Li Songbo, August 15, 2000.
for help to Wang Zhidong, the now famous ZGC entrepreneur, with whom Wang Yan had been acquainted for some years. In March 1996, Li Songbo met Wang Zhidong to discuss possible collaboration. The timing could not have been better, since Wang Zhidong was also thinking about starting an SRS Internet operation. Li said:

Wang Zhidong was very supportive and open-minded. He suggested that we could either set up a group to do Internet business in SRS, or start our own operation as an independent firm. Wang said that he was ready to invest if we started a new company.\(^{235}\)

By that time, Wang Yan, Li Songbo, and two other people—Deng Haili (邓海林), a new college graduate, and Huo Liang (霍亮), a college student at Beijing University—had already formed a team called Inimedia, and were aiming to start an Internet-related business. After talking to Li Songbo, Wang Zhidong offered Inimedia his new software package—RichWinforInternet 4.1, a Chinese-language Internet tool based on RichWin. Li Songbo and his colleagues then put the software on their website, which was hosted by Verio, a U.S.-based web-hosting company, for free downloading.

Sharing the same sense of commitment with Wang Zhidong, Wang Yan could not wait to start the business. In April 1996, he flew back to Beijing from Paris. After giving it more careful thought, Wang Yan and Li Songbo decided to abandon their idea of building their own company and instead to open an Internet operation within SRS. When informed about their decision, Wang Zhidong, who was obviously already prepared for this, brought Inimedia

\(^{235}\) Songbo interview, _ibid._
members to the SRS office together with new computer equipment. On April 29, 1996, Inimedia officially joined SRS, forming the SRS International Internet Division. The new division first set up www.srsnet.com to market Internet applications for SRS, mainly RichWinforInternet 4.1, and later RichWinforInternet 4.3. The division also opened two other Web sites: www.richsight.com, which provided information on the whole company; and www.richwin.com, which focused on marketing RichWin products.

With the ambition of building the biggest website in China, Wang Yan and Li Songbo began to think through their business model. They attempted to provide everything through their websites, from yellow page to jokes. “However,” Li Songbo commented:

Two weeks later we figured out that we were not able to do so ... we did not have enough resources. Since there was not much Chinese language content available on the Internet, we had to create everything ourselves ... which was not realistic.

In July 1996, Wang Yan and Li Songbo redirected their focus to on online search engine services. They added to their websites a Chinese-language search engine developed in-house. However, they soon realized that, unlike English-language online content, there was very little Chinese-language content available on the Internet. Besides, given that there were some high-quality overseas search engines supporting Chinese-language search functions, it was hard to gain a competitive edge with the SRS search engines. Wang Yan and his colleagues decided to wait before attempting to build a replica of the Yahoo! search engine.

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236 RichWinforInternet 4.3 Beta-1 was released in June 1996.
237 Songbo interview, ibid..
Nevertheless, they found that their online forum, or Bulletin Board System (BBS), set up originally to answer questions on different versions of RichWinforInternet, was attracting more and more visitors. In the beginning, visitors to the SRS BBS were helping each other with software-related questions; now they began to chat on various topics. At first, SRS tried to prevent users from talking about non-technical issues, but users persistently expressed their desire to exchange different ideas on various topics. Eventually, Wang Yan and his colleagues decided to open another forum called “Tantian Shuodi” (谈天说地). In August, to meet users’ needs even further, they launched the SRS online chat-room service. In September, SRS introduced yet another new forum, the Sports Forum.

As this was going on, Wang Yan and his colleagues were carefully watching overseas websites that were providing forum services, especially Chinese-language sites such as Sinanet.com. They also began to promote their website, although they had almost no marketing budget. To advertise their website, Wang Yan and his colleagues began spreading essays composed by SRS forum users over the Internet. Whenever they found interesting essays posted in their forums, they quickly dispatched them to other websites in an effort to attract visitors to the SRS site. They also marketed their forums through traditional mass media, without spending a penny. For example, when newspapers that understood little about the Internet needed articles about it, Wang and his colleagues would volunteer to provide

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238 According to The Jargon Dictionary (http://info.astrian.net/jargon/terms), a BBS is “a message database where people can log in and leave broadcast messages for others grouped (typically) into topic groups. The term was especially applied to the thousands of local BBS systems that operated during the pre-Internet microcomputer era of roughly 1980 to 1995, typically run by amateurs for fun out of their homes on MS-DOS boxes with a single modem line each. Fans of Usenet and Internet or the big commercial timesharing boards such as CompuServe and GEne tended to consider local BBSes the low-rent district of the hacker culture, but they served a valuable function by knitting together lots of hackers and users in the personal-micro world who would otherwise have been unable to exchange code at all. Post-Internet, BBSs are likely to be local newsgroups on an ISP; efficiency has increased but a certain flavor has been lost.”
materials, and naturally would let the newspapers include SRS screen copy in their Internet-related articles. By doing so, newspaper readers could easily follow the address and visit the SRS websites.

Traffic on the SRS online forums continued to increase. To manage the expansion effectively, SRS introduced the Banzhu (版主: “BBS Master” in Chinese) and “net friends” system, which contributed greatly to the originality of Sina’s information and the popularity of the website. From day one, Internet users were “net friends” in China, since they gathered like friend, only on the Internet. In the Banzhu System, those most active among the SRS net friends were asked to become “Banzhu” to coordinate forum activities such as organizing discussions and answering questions.

By now, SRS had developed three main services: its search engine, forums, and online chat rooms. Although business was expanding, the International Internet Division took on no additional staff members until 1997 (see Table 4.2.2). Four people from Inimedia had done all the work. Capital costs were strictly controlled. Other than salaries, the biggest expenditure was about US$70 per month, the cost of hosting their homepages in the United States.240 Because of the financial constraints, they had to get online through dial-up to operate their services. This situation lasted until 1998, when Wang Zhidong obtained his first round of overseas venture capital financing.

239 Tantian Shuodi means “chatting” in Chinese.
240 Songbo interview, ibid.
Table 4.2.2 Growth in Numbers of Employee of Beijing Sina

<table>
<thead>
<tr>
<th>Year</th>
<th>12/96</th>
<th>12/97</th>
<th>12/98</th>
<th>12/99</th>
<th>12/00</th>
<th>11/01</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRS</td>
<td>48</td>
<td>59</td>
<td>150</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>(International Network Division)</td>
<td>(4)</td>
<td>(2)</td>
<td>(7)</td>
<td>(50)</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Beijing Sina</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>368</td>
<td>386</td>
<td>478</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>59</td>
<td>150</td>
<td>368</td>
<td>386</td>
<td>478</td>
</tr>
</tbody>
</table>

Source: Sina

In the beginning, the Computer and Tantian Shuodi Forum were much more popular than was the Sports Forum. In April 1997, a graduate student at Beijing Polytechnics University, Chen Tong (陈彤), became the Banzhu of the Sports Forum. Chen thought that the Computer and the Tantian Shuodi Forums attracted users mainly because the user base at the time was very homogeneous; many were software developers who came to SRS websites seeking ways to solve problems. Chen believed that the future held a trend wherein more and more users would exchange thoughts on various topics, such as sports. Chen began to think about all of the possible methods with which to build a lively forum. To keep visitors at the Sports Forum, Chen was guided by the principle that no matter what kind of questions net friends asked, the Banzhu had to answer. For example, when a net friend asked about the airline schedule from Beijing to Guangzhou, Chen called the airline and posted the schedule on the forum. Chen changed his user IDs frequently so that net friend would not know that there was only one person organizing all the work behind the scenes. “I only used my own name to post sports-related articles written by myself,” Chen recalled. Chen’s dedication attracted an increasing number of visitors to the forum.

241 Chen Tong became the vice general manager of Sina China region in June 2001.
In September 1997, the 1998 World Cup Qualifying Games opened in China. SRS decided to conduct a live online relay broadcast of the event. The company prepared by downloading a streaming tool from Vivo Software Inc. (vivo.com), and brought a TV and VCR from home to the office. Some SRS net friends, such as Chen Tong, Dong Naxin (董纳新), and Dong Nawei (董纳维), volunteered to help. The four full-time SRS staff members and three net friends worked hard during the games. In the end, despite having no advanced equipment, they successfully broadcast the games over the Internet with only a three- to five-minute delay. The website traffic increased suddenly during the broadcast, and the SRS server went down a couple of times since it could not handle the greater demand. “The quality of their broadcast was not good. But that was the only place for me to go,” recalled one SRS user.242

The live replay broadcast of the 1998 World Cup Qualifying Games attracted new visitors to SRS. The Sport Forum became increasingly popular. Moreover, since it became the liveliest place to go for people with Internet access, many SRS net friends later became key players who helped accelerate the country’s Internet development. Chen Tong recalled:

Many founders and managers of current Internet companies, and many famous industrial observers, were net friends of our forums at that time ... we had the best forums in the whole country.243

Chen Tong, though, was not satisfied with SRS’s achievement. He thought that, in the end, an online forum was just a place where net friends could discuss topics in which they were interested:

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243 Personal interview with Chen Tong, August 19, 2001.
I realized that online forums provided information in a passive and random fashion … although the Banzhu could sometimes lead the direction of discussions.\(^{244}\)

To make a change, Chen began to carefully observe other sports-related sites. He found that a domestic website operated by a net friend with the ID “Xihuhuangyu” was attracting a crowd of visitors by using a news channel to provide information on soccer games. Daily Soccer (www.dailysoccer.com), a U.S.-based sports website, also inspired Chen Tong with its “very fast speed of news updating, and rich content …”\(^{245}\)

Early that summer, Chen had proposed that SRS should establish channels to be more proactive in providing information. However, the proposal was not undertaken since the International Internet Group did not hire enough staff. The 1998 World Cup Qualifying Games changed the opinions of Chen’s proposal. On October 31, 1997, the Chinese soccer team lost a game that many Chinese fans had expected to be an easy victory. On November 2, a net friend, Lao Rong,\(^{246}\) posted an article on the Sports Forum titled “1031: Dailian Jinzhou Did Not have Tears.” Over two days, the article became well-known among Chinese net users and was circulated to many websites as well as newspapers. The surprisingly quick and wide-ranging circulation of the article among Chinese websites became one of the most influential events in China’s Internet history. To some extent, this article led to BBS fever among Chinese Internet users. Many traditional media companies, including Southern Weekend, one of the most popular newspapers in China, quoted the article in full, and had a comprehensive special report on the work of SRS on the 1998 World Cup Qualifying Games. The popularity

\(^{244}\) Tong interview, ibid.
\(^{245}\) Tong interview, ibid.
of SRS was ever-increasing. “The impact brought by that article exceeded our expectations,” Chen Tong recalled. Wang Yan and Li Songbo realized that it was time to implement Chen’s suggestion: establish a sports news channel. The first SRS sports news channel, “Jinji Fengbao” (竞技风暴)\textsuperscript{247} or sports.srsnet.com, was set up at the end of November 1997. In addition to relying on sources of traditional media, SRS carefully edited different pieces of information collected from the Internet or articles written or submitted by net friends in SRS forums.

At the time, the traditional media in China found timely reporting of sports events, particularly international events, to be continually problematic. For example, during Chinese Soccer League-A’s 1997 season, six games were held each Sunday afternoon in different cities. The earliest time Chinese soccer fans could get the results of these games was at 10:30 p.m. on Sunday, when the China Central TV Station (CCTV) sports program aired. Chen was confident that he could do things differently. He began by organizing an informal “news agency” consisting of SRS net friends from different regions of China and different countries around the world. At least one net friend was assigned to track every soccer team closely and to post related news quickly to JingJiFengBao. Under Chen and his colleagues’ effort, JingJiFengbao soon became the biggest the soccer website in China.

By now, SRS had begun to switch itself gradually to being a content provider, rather than being just a forum organizer. The sports BBS became the biggest online sports salon in China.

\textsuperscript{246} Lao Rong is the pen name of Wang Juntao, who later was the founder and chairman of 8848.com and my8848.com, two pioneer Chinese B-to-C portal site companies.

\textsuperscript{247} “Racing Storm” in Chinese.
In the end of 1997, the average daily page views for SRS reached a couple of million (see Table 4.2.3).  

<table>
<thead>
<tr>
<th>Year</th>
<th>1996</th>
<th>1997</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001 (Through November)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beijing Sina</td>
<td>0.5</td>
<td>0.8-2</td>
<td>70</td>
<td>220</td>
<td>n.a.*</td>
<td>n.a.*</td>
</tr>
<tr>
<td>Total</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>n.a.</td>
<td>3,400</td>
<td>8,700</td>
</tr>
</tbody>
</table>

*Not available

Source: Sina, Financial Reports

When srsnet.com had reached a certain scale, Wang Zhidong began to push Wang Yan to think about further business development that could bring greater revenues to SRS. At the end of 1997, Wang Yan and his colleagues began to offer additional services such as domain name registration services, virtual server hosting, and website design. However, they found it difficult to settle on a clear business model.

In May 1998, SRS decided to launch a special channel to report the 1998 World Cup (france98.srsnet.com). To access broader information, the company negotiated with the Xinhua News Agency Beijing Branch, and paid Xinhua RMB ¥10,000 for a six-month license to re-use news information released by China's most influential news agency. Meanwhile, SRS collected information on its own. Wang Yan and his colleagues came up with many different ideas for doing so quickly. Wang Yan even went to France to serve as an interpreter for Huang Jianxiang (黄健翔), a famous sports announcer and analyst for CCTV.

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Wang Yan urged many of his friends who lived in France to collect information for SRS. SRS also organized overseas net friends located in other countries, such as Brazil, to collect local reaction to games. Whenever overseas net friends watched a game or observed a game-related activity, they would quickly dispatch reports to SRS. Hence, SRS information on the 1998 World Cup was usually available ten or more hours before that of other press agencies, including Xinhua News Agency. Consequently, Xinhua News Agency news articles ceased to play an important role in the Chinese coverage of the 1998 World Cup Games.

SRS was more attractive to sports lovers for another reason: the existing group of net friends were enthusiastic soccer fans. Journalists at big agencies such as Xinhua were usually not expert in sports. "But after that, when we started to have news channels, Xinhua News Agency’s articles became more and more helpful," Chen explained. Some newspapers began to ask SRS for articles. Meanwhile, more and more net friends came to SRS to chat about games in the Sports Forum. "It was not necessary for me to go to SRS to watch the World Cup since I could see everything from TV," an overseas user recalled, "However, after I watched games, I always went to the Sports Forum to join the discussion with soccer fans."

Quickly updated information and a lively BBS soon made SRS one of the most frequently visited Chinese websites. It reached its record level of traffic, some 2 million hits per day. Other Chinese websites, such as Chinabyte, China.com, Sohu (Sohoo), and EastNet, also put a lot of effort into setting up special sites for reporting the 1998 World Cup. For example,

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249 Personal interview with an SRS user, July 17, 2000.
250 Tong interview, ibid.
251 Personal Interview with a former SRS user, August 17, 2000.
Chinabyte assigned 30 people to the job, while China.com invested RMB ¥ 3 million and enjoyed direct help from one of its principal owners, the Xinhua News Agency.253 Sohu cooperated with CCTV to get the news information online.

Compared with these competitors, SRS had invested much less capital and human resources. Only eight people, including five full-time and three part-time staff members, were working on the project.254 The biggest expenditure was for a server rented especially for the event at a cost of several hundred U.S. dollars per month. “But we did it successfully,” Li Songbo emphasized, “since we had already accumulated experience from our first live replay broadcast practice in 1997.”255

Although SRS did not make money from the 1998 World Cup efforts256, Wang Yan and Li Songbo began to develop partnerships with different companies, such as traditional media companies, as well as with potential online advertisement clients. “We already saw the potential of online advertisement. We were aware of the market success of U.S. Internet portals such as Yahoo!, Lycos, and Excite, which employed online advertising as their revenue source. Through broadcasting the 1998 World Cup, we saw the feasibility of this [online advertisement] model. But we thought that in China, using online advertisement was probably too early … not many companies were willing to pay for it at the time. So we did it

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254 Songbo interview, ibid.
255 Songbo interview, ibid.
256 China.com earned RMB ¥ 200 from selling online advertisements during the season. See China ComputerWorld, June 22, 1998.
in a different way ... we sent a couple thousand page views to our potential client, letting them become familiar with the effect of online advertisement themselves.”

After the World Cup, SRS standardized its system for managing its net friends resource. The company began to compensate net friends who took the role of Banzhu and those who contributed good forum essays. A Banzhu was paid several hundred RMB per month, and essay writers were paid about RMB ¥ 80 per 1,000 words. Li Songbo said:

We did not have money ... so that we were not able to afford professional journalists to write for us. We had to think about some alternatives. Thus, essays written by our net friends became a good source of information. But we did not let them work for free ... we tried hard to convince the top management of SRS, and finally received some money for paying our net friends who made contributions to SRS."  

SRS’ net friends resource had been effectively utilized by Sina and became a unique competitive advantage of the company.

The manner in which Chen Tong and his colleagues conducted the broadcast during the 1998 World Cup later became benchmarks in the daily work of SRS, particularly with respect to providing timely news information. During the World Cup, SRS reported every goal for each game. Such detailed and instantaneous news reporting later became one of the hallmarks of the company’s general news operation and evolved into Sina’s well-known 24-hour continuous rolling news reporting system. Offering users as much information as possible

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257 Songbo interview, *ibid.*
also became a daily operating principle. Chen Tong believed that an Internet content provider should provide users with a rich pool of content and let them choose what to read. Some techniques, such as rich photo display, later became important features of the SRS news channel. As Chen Tong commented:

The 1998 World Cup helped us to accumulate a lot of experience. If one goes back to the site at that time, one will find that there are many similarities between the 1998 World Cup site and the current news site of sina.com.cn.259

Before the World Cup, the majority of SRS users were either overseas subscribers or Mainland Chinese software developers. The games, though, attracted many new types of users. “We could sense that our user base was becoming more and more diversified. They showed interest in many different fields.”260 After the 1998 World Cup, the priority in the SRS agenda became thinking about providing more services to meet the needs of this new user group. Wang Zhidong had already received money from WIIG (See Table 4.2.4). The company began to invest in expanding the technical infrastructure of its website operation. Originally, there only two services and getting online required using the dial-up method. Now SRS management allowed the International Internet Division to add eight servers and rent an exclusive line for Internet connection at RMB ¥1 million per year. At the same time, the number of stuff increased sharply from seven to 50.

258 Songbo interview, ibid.
259 Tong interview, ibid.
260 Songbo interview, ibid.
Table 4.2.4 Sina’s (SRS) Fundraising

<table>
<thead>
<tr>
<th>Date</th>
<th>Investors (Country or Region)</th>
<th>Amount (US$ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 1993</td>
<td>Stone Group (Mainland China)</td>
<td>HK$5 million</td>
</tr>
<tr>
<td>October 1997</td>
<td>Walden International Investment Group (USA)</td>
<td>US$6.5 million</td>
</tr>
<tr>
<td>May 1999</td>
<td>Walden International Investment Group (USA)</td>
<td>US$25 million</td>
</tr>
<tr>
<td></td>
<td>Goldman Sachs (USA)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flatiron Partners (USA)</td>
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</tr>
<tr>
<td></td>
<td>Crystal Internet Ventures (USA)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Economic Development Board (Singapore)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td></td>
</tr>
<tr>
<td>November 1999</td>
<td>Dell Computer Corp. (USA)</td>
<td>US$60 million</td>
</tr>
<tr>
<td></td>
<td>Creative Technology Ltd. (Singapore)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trend Micro (Japan)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sumitomo Corp. (Japan)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>United Overseas Bank (Singapore)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pacific Century Cyber Work (Hong Kong)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pacific Convergence Group (Hong Kong)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td></td>
</tr>
</tbody>
</table>

Source: Company data and news information

Soon after the 1998 World Cup, Chen Tong, who had just become a full-time employee of SRS, suggested establishing news channels. He explained:

So far we had been focused on sports news. However, I studied some overseas websites ... statistics showed that more users were interested in general news than just sports news. In some surveys, sports news ranked fourth or lower in terms of popularity. Another thing that I realized was that our cooperator, the Xinhua News Agency, which had strength in general news, only had a small
amount of information on sports news. We’d better utilize this great source of
general news …

Chen Tong’s analysis later proved to be correct (see Table 4.2.5). When Chen presented his
idea, he won the immediate support of Wang Yan, who had already been thinking about the
same thing. In September 1998, SRS assigned 31-year-old Chen to head its News Center,
which had only three staff members at the time, and launched the SRS news channels.

In the beginning, the frequency of visits to the news channel did not match expectations.
Wang Yan and his colleagues realized that they should change the home page setting to
emphasize the news channels. On October 20, 1998, the website (SRSNET) was renamed
SRSOnline (利方在线). At the same time, SRS began to promote itself as a “Portal Site.” The
website had been transformed from a community site to a content site.

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261 Tong interview, ibid..
<table>
<thead>
<tr>
<th>Category</th>
<th>01/99</th>
<th>07/99</th>
<th>01/00</th>
<th>07/00</th>
<th>01/01</th>
<th>07/01</th>
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<tr>
<td>News</td>
<td>66%</td>
<td>84%</td>
<td>65.52%</td>
<td>82.00%</td>
<td>84.38%</td>
<td>63.5%</td>
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<tr>
<td>Computer Hardware and Software Entertainment (Game, Arts, Sports, etc.)</td>
<td>76%</td>
<td>68%</td>
<td>51.70%</td>
<td>59.08%</td>
<td>58.00%</td>
<td>44.2%</td>
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<td></td>
<td>65%</td>
<td>47%</td>
<td>38.79%</td>
<td>50.88%</td>
<td>52.66%</td>
<td>44.1%</td>
</tr>
<tr>
<td></td>
<td>--**</td>
<td>52%</td>
<td>38.04%</td>
<td>45.99%</td>
<td>45.99%</td>
<td>32.8%</td>
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<tr>
<td>Science and Education</td>
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<td>41%</td>
<td>31.43%</td>
<td>40.16%</td>
<td>35.77%</td>
<td>31.4%</td>
</tr>
<tr>
<td>Financial</td>
<td>34%</td>
<td>26%</td>
<td>21.22%</td>
<td>31.07%</td>
<td>22.88%</td>
<td>19.0%</td>
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<tr>
<td>Job Hunting</td>
<td>30%</td>
<td>19%</td>
<td>19.25%</td>
<td>26.11%</td>
<td>29.12%</td>
<td>19.8%</td>
</tr>
<tr>
<td>Trade and Commerce</td>
<td>--</td>
<td>21%</td>
<td>17.26%</td>
<td>23.28%</td>
<td>15.66%</td>
<td>10.4%</td>
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<tr>
<td>Travel Information</td>
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<td>14%</td>
<td>11.94%</td>
<td>19.33%</td>
<td>12.55%</td>
<td>12.5%</td>
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<tr>
<td>Advertisement</td>
<td>24%</td>
<td>14%</td>
<td>12.79%</td>
<td>15.23%</td>
<td>13.51%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Medical Information</td>
<td>--</td>
<td>10%</td>
<td>9.39%</td>
<td>14.48%</td>
<td>11.78%</td>
<td>7.6%</td>
</tr>
<tr>
<td>Matchmaking Services</td>
<td>9%</td>
<td>8.20%</td>
<td>12.09%</td>
<td>9.30%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work and Business</td>
<td>51%</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Others</td>
<td>--</td>
<td>2%</td>
<td>0.73%</td>
<td>17.61%</td>
<td>13.27%</td>
<td>13.2%</td>
</tr>
</tbody>
</table>

*Results of multiple choices

**Not in the questionnaire

Source: Various volumes of the "CNNIC Semi Annual Reports On Internet Development In China"

Although Chen Tong had no experience in the media industry before he worked for SRS, he had been a careful observer of mass communication. In 1996, when CNN was not available to most Chinese people, Chen—who specialized in radio technology at a graduate school—set
up a system to watch CNN’s programs. CNN’s rolling news reporting of specific events made a great impression on Chen. At that time, most Chinese websites updated news weekly or daily. But Chen thought that SRS should take advantage of Internet speeds by providing timely news reporting. He set this goal for his News Center: “not daily, not hourly, but update immediately.”

When a new U.S.-Iraq crisis unfolded at the end of 1998, SRS quickly set up a special topic on the events. Beginning with the second day of the conflict, Chen Tong required his staff to remain glued to the TVs and computer screens around the clock to collect information from various sources and update SRS news on this topic. Afterwards, 24-hour news monitoring became routine for Sina.

About a year-and-a-half later, other domestic websites began to imitate SRS with immediate news updating. However, nobody had been able to match Sina’s speed. A Chinese journalist had tracked the time differences in releasing news between Sina and other media agents, including traditional media and other Internet content providers. When the Chinese women’s soccer team won the World Cup championship around 6:30 a.m. Beijing time on July 11, 1999, Sina was the first to report the event. Sohu and NetEase reported the news before 7:00 a.m. Xinhua News Agency released the news at 7:01 a.m., while other traditional news agencies such as People’s Daily and CCTV had still not released anything by 7:15 a.m. On July 22, 1999, when the Chinese central government announced its “attack on Falun Gong,”
Sina was again the first to release the breakthrough news on the Internet by replaying a CCTV’s news broadcast at 3:04 p.m.\textsuperscript{262}

In December 1998, SRS purchased Sinanet. After the new company was officially established, the SRS homepage was changed to sina.com.cn. But there were no big changes in the website. The interface and logo were kept the same as in the SRS October version, and news channels still remained the core content.

Entering 1999, the intensified conflict in Kosovo brought Chen another opportunity to demonstrate further his ability to provide first-rate information. On March 24, U.S.-led NATO forces carried out the threat to bomb Serbia over Kosovo, attacking a sovereign European country for the first time in the North Alliance’s history. On March 26 (Beijing time), Sina established the topic “Kosovo Crisis” to track the event. “We closely followed major news agencies such as CNN, and popular Web sites over the world. In addition, we especially kept our eye on those local radio and TV stations and Web sites in Europe, particularly in Yugoslavia,” Chen recalled. By doing so, Sina’s rich and timely news attracted a great numbers of visitors to browse the Kosovo Crisis topic.

On May 8, 1999, U.S.-led NATO bombed the Chinese Embassy in Belgrade at 5:45 a.m. (Beijing time). Sina’s staff on duty immediately captured the astonishing news and reported all related information. Sina’s “Kosovo Crisis” traffic soon increased to more than five times the normal rate. Since the Kosovo Crisis, the name “Sina” has become synonymous with “news.” Sina had solidly established its reputation as a top Internet news provider by offering

\textsuperscript{262} Fang Jinyu (方进玉): “Diao Cha Xinlang” (调查新浪 Investigating Sina), Nanfang Daily (南方日报), September 16\textsuperscript{th}, 1999.
comprehensive and up-to-the minute news services. Not surprisingly, in July 1999, Sina was ranked as the top Chinese website in CNNIC's semi-annual survey, and had continued to hold first place.

Under Chinese government regulations, domestic commercial sites were not allowed to generate news, with the exception of new regarding sports, technology, and entertainment. Sina established its relationship with some well-known traditional news agencies such as Xinhua News Agency and CCTV as useful sources of general news. Also, Sina has been able to use its valuable net friends resource to provide information faster than traditional media providers. Furthermore, articles written by net friends were usually from different perspectives than what people read from newspapers. Consequently, some traditional media began to come to SRS seeking cooperation in sharing sources of information.

Even under strict regulation, Sina had demonstrated its uniqueness among the competition. According to Chen Tong, Sina’s News Center in August 2001 processed, on average, some 2,000 news items each day. Among them, more than 80% came from Sina’s traditional media partners. But in the areas of sports, technology, and entertainment, Sina itself generated more than 30% of the news.

Chen Tong had a particular perspective on hiring people. In the beginning, the SRS News Center sought to hire people from the traditional media, but Chen soon discovered that these people were not necessarily the best candidates for Internet-related jobs. So, Chen established his own standards and looked to hire people who matched these standards regardless of the

263 At the end of 2000, the government offered Sina and other Chinese commercial sites a license for online news publishing.
candidate’s experience. Chen first required his editors to have “a sense of news, which is hard to describe in language . . .” He continued:

I try to identify such sense through face-to-face job interviews . . . You know, good candidates should be those who are sensitive to what is interesting, what is important, and they should have a desire to spread what they see . . . 264

In addition to other basic requirements such as computer programming skills, article-editing techniques, and Chinese and foreign language capabilities, Chen also looked for candidates with a broad knowledge base. Chen’s thinking differed from the traditional media in that traditional editors are required to work only on a specific industry. “Another basic requirement is hard work,” Chen emphasized. As of October 2001, less than 20% of Sina’s editorial team had come from the ranks of traditional media.

4.2.4 An International Management Team

SRS was the first ZGC company to hire foreign consulting firms and to introduced overseas international venture capital successfully. This history laid a solid foundation for the company’s quick introduction of an international management team after its merger with Sinanet.

In addition to the overseas management team from Sinanet, Mark Fagan, a consultant from Robertson Stephens, also joined the new company as chief financial officer after the merger. In January 1999, Daniel Mao, the former vice president of WIIG, joined Sina and became the chief operating officer. The new company also searched for professional managers
through different channels. They soon targeted James Sha (沙正治), an ethnic Chinese with comprehensive know-how in technology, management, and the Internet. Sha had grown up in the United States and was an executive at Oracle. He became a senior vice president of Netscape.com in August 1994. In August 1998, before AOL purchased the company, he left Netscape and started a California-based venture capital firm. When Sina approached him, Sha at first was hesitant. But Sina persisted in trying to get him to join the board. In March 1999, Sha was convinced to join Sina as co-chief executive officer, operating the company together with Chiang. Sha then hired a couple of managers from Silicon Valley and established an international management team, which had never been seen in a domestic Chinese company. Since most of the team members were from Silicon Valley, which was the role model for Chinese high-tech startups, the media began calling Sha and his colleagues “the dream team.”

In the spring of 1998, the strong presence of the internationalized management team helped Sina obtain US$25 million from U.S. venture capitalists. At the same time, Sha and his team brought some fresh ideas, such as quality control and big project planning to Sina.

During a board meeting in early 1999, Wang proposed that Sina should begin to target an initial public offering on Nasdaq. He had confidence that a China concept stock would have a big impact on the market. However, Sha had a different view. He insisted that it was too early for Sina to go public. He thought that he needed to reorganize the company’s management team to make it more professional.\textsuperscript{265} In the end, Sina did not take the chance of going public. “We missed a good opportunity … instead, China.com went public on Nasdaq, becoming the

\textsuperscript{264} Tong interview, \textit{ibid}.


Soon after that, when we began to apply for listing on Nasdaq, the market began to face problems … if we had gone public earlier, things would have worked in a much better way for us.

In July 1999, Sina’s board of directors approved Sha’s request to be the sole CEO of the company. As soon as Sha took over, he began to swap important positions with people from Silicon Valley, and Chiang, Mao, Yan, and Mark Fagan left their co-CEO, COO, CTO, and CFO positions, respectively. Sha then decided to put his core management team in California, managing business in China from the United States. Chiang and Wang began to feel uncomfortable with Sha’s move. “Wang Zhidong believed Mainland China should be the focus of the company’s development. However, Sha insisted that exploring overseas markets was more important,” Sina’s CFO Cao Weiguo (曹国伟) commented.

The fundamental disagreement among the top managers was becoming more and more serious. Finally, on August 31, 1999, Sina’s board of directors decided to remove Sha from the CEO position, and Sina commented publicly on the demise of the “dream team.” A few days later, on September 3, the board named Wang Zhidong as the CEO. Sha left the company in October 1999, followed by the resignations of the CFO, the CTO, and an

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266 Interview with Wang Zhidong, ibid.
American board member. Daniel Chiang, Daniel Mao, Mark Fagan, and Yan Yuanchao all returned to their former positions. Several days later, Mark Fagan left Sina. The big management shakeup had finally ended. Wang commented:

Although he is an ethnic Chinese, James Sha grew up in the U.S. He does not really understand the China situation, or Sina’s. Plus, he had never been a top executive of a big company before. That’s why he did not really suit the position.269

4.2.5 Venture Capital and IPO

In 1995, an executive from the Stone Group introduced Wang to Feng Bo (冯波), an assistant at the Robertson Stevens Corp., a U.S.-based investment bank. Feng arranged a trip for Wang to the Silicon Valley in July to meet with U.S. Internet companies and investors. During this trip, Wang was fascinated by how much venture capital can flow to and support a high-tech startup. He tried unsuccessfully to make arrangements with Morgan Stanley.

Upon his return to China, Wang decided to gather support in the form of overseas capital. However, people at both Stone and SRS did not think Wang’s idea was feasible, since they thought American ways of operating high-tech companies would not suit a typical ZGC firm such as SRS. But Wang saw things differently, believing that by introducing venture capital he could reform the ownership structure and ensure the founders’ benefits, which had been a problematic aspect in Wang’s startup experience.

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As a ZGC company, SRS had its weakness in terms of ownership structure. Nothing, including my 20% share of equity, was under the protection of the law … I had always been worried that what happened to Wang Jizhi would happen to me as well. Thereby, I made up my mind to introduce the Silicon Valley model, trying to prevent SRS from being the second Sentendy by using VCs.\(^{270}\)

In December 1995, Wang signed a contract with Robertson Stephens Corp., making this U.S. investment bank the official financial consultant for SRS. In October 1996, Wang again traveled to the United States, meeting with venture capitalists introduced by Robertson Stevens. During this trip, Wang began to understand more about how venture capital works. For example, he learned that the investment from the Stone Group was industrial capital, but the most ideal investment should be venture capital, which usually did not expect a quick return.

In 1996, the Commission of Technology and the Beijing local government promised SRS new bank loans. However, the bureaucratic procedure made it too slow to allow SRS to receive the actual help. Wang became even more anxious to obtain overseas financial support.

Up until this time, SRS had been managed under more or less as a family business. For example, Wang’s brother controlled the source code of the company’s software development, and Wang’s wife was in charge of the SRS finance division. The U.S. financial consultant from Robertson Stephens began to urge Wang to change this model to meet U.S. investors’ standards. At first, Wang was not comfortable with this, but eventually he followed the advice.

\(^{270}\) Li Peng & Wang Xing (李鹏 王星), ibid.
During 1996, Wang focused on reforming the company under the instruction of his financial consultant. In April 1997, Wang even hired the Robertson Stephens financial consultant, Mark Fagan, as his CFO. SRS became the first ZGC firm to hire a foreigner as an executive member. But adopting an “American way” of dealing with the company’s operations was an arduous process. Yan Yuanchao, the CTO of the company, a typical ZGC technician, recalled:

It took us very long to understand what they [venture capital firms] wanted, and to reach their standard. Then they started to examine everything to see if we had the capability that they expected. They checked things like strategies and profit situation ... it was so painful a process ...

In early 1997, Wang began his “roadshow” to attract venture capital from the United States, Hong Kong, and Singapore. Finally, U.S.-based Walden International Investment Group (WIIG) agreed to invest in SRS at the company’s market value of US$8.5 million. WIIG had invested in about 30 companies in China. It began to invest in Internet-related business in 1997. In October 1997, SRS successfully obtained US$6.5 million of international venture capital from WIIG, becoming the first Chinese domestic IT company to gain foreign venture capital (Table 4.2.6). The paperwork took four months, because “from U.S. investors’ point of view, local firms are not standardized at all ...,” commented Daniel Mao, then a Walden vice president, after the deal.

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271 Journalist interview with Yan Yuanchao. Li Peng & Wang Xing (李鹏 王星), *ibid.*
In May 1999, Sina had its second round of fundraising, gaining US$25 million investment from more than ten overseas investors, including WIIG, Goldman Sachs, Flatiron Partners, Crystal Internet, the Economic Development Board of Singapore, and others. By this time, the company was already one of the most influential Internet portals in China. It was the largest round of overseas investment to that date ever made in the Chinese Internet Market, and became a milestone for domestic Internet firms seeking overseas venture capital. In November 1999, Sina again successfully obtained investment of more than US$60 million in overseas venture capital. Dell, Creative Technology, Trend Mirco, Sumitomo, United Overseas Bank, Pacific Century Cyber Work, and Pacific Convergence Group led this round of financing. This time, Sina introduced some industrial capital and Asian venture capital. (See Table 4.2.5)

In the summer of 1999, Sina started to plan its public offering on Nasdaq and began talking to Morgan Stanley Dean Witter and Goldman, Sachs & Co. In September 1999, Sina officially assigned Morgan Stanley Dean Witter as its underwriter to manage the company’s IPO. However, the Chinese government released prohibitions against foreign investment in China’s telecom sector, which in late 1999 came to include Internet companies. As a form of foreign investment, Sina found it was unable to get approval from Beijing to list abroad. The listing date was delayed multiple times while company executives negotiated with the government to win approval. Firms that went public abroad without official sanction ran the risk of being shut down or at having their assets in China seized by the government. In other words, the government did not allow foreign capital to get involved in domestic ICP business. However, for most domestic Internet content providers (ICPs), there was foreign capital involvement.

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273 WIIG invested US$10 million.
Consequently, Sina was forced to take away sina.com.cn, its most popular Web destination in China, from its listed body. The company established two Chinese entities—one an advertising company, Beijing SINA Interactive Advertising Co., Ltd. (the Ad Company); the other an Internet content provider, Beijing SINA Internet Information Services Co., Ltd. (Beijing SINA). Sina.com, as the holding company, invested RMB ¥1 million as a loan to Wang Zhidong and Wang Yan. Eventually, Wang Zhidong “owned” 75% of the Ad Company and 70% of Beijing SINA. Wang Yan, the general manager of the China operation, “owned” 30% of the equity of Beijing SINA (See Figure 4.2.1) Despite the ownership, there was an agreement that they both should transfer their interest in the Ad Company or Beijing SINA at the net book value when the regulation changed or when they left the company. Such IPO structuring strategy became a model for other companies, such as NetEase and Sohu, which later also completed their IPOs on Nasdaq.

In the end, the Ministry of Information Industry and the China Securities Regulatory Commission (CSRC) consented to Sina’s international listing. On April 13, Sina had its initial public offering on the U.S. Nasdaq board at US$17 per share.²⁷⁴ On June 1, 2001, the capitalization reached US$70 million.

By now, Sina Beijing had added a series of new channels and services. For example, it released Youming Buluo (游民部落), a game channel, and Xinlvren (新旅人), a travel channel. The company also provided new services such as electronic greeting cards and electronic magazines. In February 1999, Sina began to emphasize its online search engine. On

²⁷⁴ At the time of the IPO, Sina’s ownership structure was as follows: Walden 13.3%; Stone 10%; Dell 6.4%; and Wang 6.3%.

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275 "Net author" refers to an author who “publishes” a novel or essay on the Internet.
Figure 4.2.1 Sina's Operating Structure (April 2000)

Source: Sina
Meanwhile, Sina's network of websites were offering global reach with regional targeting. The company's sites included http://www.sina.com.cn, serving China and Greater China; http://www.sina.com.tw, serving Taiwan; and http://www.sina.com, serving North America and overseas Chinese worldwide. By the time of the IPO, all of Sina's destination websites had four or five basic content channels and two localized channels. On April 12, 1999, Sina reorganized its channels. The new version had only seven channels for each subsidiary. Besides common channels such as news, lifestyle, Dow Jones stock quotes, and online communication, each subsidiary had four other channels with local content. Further, in September 1999, Sina opened its Hong Kong site (http://www.sina.com.hk). In December 1999, Sina opened offices in both Shanghai and Guangzhou. By January 2001, Sina had consecutively topped CNNIC's ranking of Chinese websites four times (see Table 4.1.5).

4.3 Sohu.com

Founded in 1996, Sohu.com Inc. is considered the first company in China to have copied the "Yahoo! model" successfully. In addition to its well-known online Chinese-language directory services and search functions, Sohu—like the other two biggest domestic Internet portal sites, Sina and Netease—offers an entire range of portal services. These include branded channels covering news, sports, finance, online shopping, email services, online chat, and so on. As of May 2001, the company’s average daily page views had reached 121.1 million, with 23.3 million registered users (see Table 4.3.1), making it one of the top three Internet portals in China. Through its aggressive marketing efforts, Sohu has introduced trends and models developed overseas to local Internet circles. By implementing practices

This case is primarily based on personal interviews.
such as online search engines, banner advertising, content aggregation, and fundraising, the company has played an important role as an educator in China’s Internet market. Sohu released its initial public offering on Nasdaq in July 2000.

Table 4.3.1 Page Viewers per Day and Accumulated Registered User Numbers (in millions)

<table>
<thead>
<tr>
<th>Month/Year</th>
<th>07/99</th>
<th>12/99</th>
<th>03/00</th>
<th>06/00</th>
<th>07/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page Views</td>
<td>2.0</td>
<td>6.0</td>
<td>9.5</td>
<td>16.3</td>
<td>20</td>
</tr>
<tr>
<td>Registered Users</td>
<td>n.a*</td>
<td>n.a.</td>
<td>1.6</td>
<td>3.3</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Month/Year</th>
<th>08/00</th>
<th>09/00</th>
<th>10/00</th>
<th>11/00</th>
<th>03/01</th>
<th>05/01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page Views</td>
<td>25</td>
<td>44</td>
<td>64</td>
<td>87</td>
<td>107</td>
<td>121.1</td>
</tr>
<tr>
<td>Registered Users</td>
<td>4.5</td>
<td>7.8</td>
<td>9.2</td>
<td>10.5</td>
<td>18.7</td>
<td>23.3</td>
</tr>
</tbody>
</table>

*Not available
Source: Prospectus; Newsbytes News Network, July 2000; Sohu; Security Times

4.3.1 Charles Zhang and Sohu: Founding Process and Development

Charles Zhang (张朝阳), Sohu’s founder and chief executive officer, is one of China’s best-known Internet pioneers. *Time Digital* listed him as one of the world’s top fifty “Digital Cyber Elite” in October 1998,\(^{277}\) and was elected one of *Fortune* magazine’s “25 Rising Stars” in May 2001.\(^{278}\)

Zhang was born in 1964 in Xian, Shanxi Province. In 1985, he graduated with a bachelor’s degree in physics from Tsinghua University, one of China’s top universities. That same year, he received the prestigious China-U.S. Physics Examination and Application Scholarship

\(^{277}\) See http://www.time.com/time/digital/cyberelite/
(CUSPEA), standing out despite fierce competition. Created by the Chinese government in 1979, CUSPEA was initiated and led by a well-known Nobel Prize-winning Chinese-American physicist, Tsung-Dao Lee (李政道). The fund was established for Chinese students pursuing graduate degrees in the natural sciences in the United States.279 Zhang was admitted to the doctoral program in the Physics Department at the Massachusetts Institute of Technology (MIT) and with CUSPEA assistance, he completed his PhD program in experimental physics in 1993 and began post-doctoral studies at the Institute.

Like many youngsters in China at the time, Zhang became enthusiastic about the natural sciences as a teenager.280 “Since middle school, physics had meant almost everything to me,” Zhang recalled.281 During his stay at MIT, he continued to pursue his dream of becoming a top scientist even as many of his fellow Chinese physics students began to switch to “practical fields” such as business consulting. Unexpectedly, it was introduction to the Internet in 1993 that changed Zhang’s mind.

In the spring of 1993, a couple of students set up a server and put MIT online as one of the first hundred Web servers in the world.282 Fascinated by the technology, Zhang began to surf the Internet whenever he was waiting for the data processing of his physics experiments. He installed Chinese-language software in the UNIX system, reading and printing out Chinese-language articles. The introduction of Mosaic, a user-friendly graphical front-end to access

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279 According to CUSPEA, China sent 915 graduate students to U.S. universities during the period 1979-89. The US government also supported the program financially. See: http://cuspea.pku.edu.cn/.
280 In the late 1970s and early 1980s, Deng Xiaoping’s open and reform policies brought nationwide attention to the importance of science and technology (See 4.1). Chinese youngsters began to consider scientists, such as the famous Chinese mathematician Chen Jingrun, to be heroes.
281 Personal interview with Charles Zhang, October 26, 2001.
Internet resources, pushed Internet development dramatically. Industries and the media in the United States began to take notice of the Internet. The White House and the United Nations also went online. By the end of 1993, there were 600 websites worldwide (see Table 4.3.2).

<table>
<thead>
<tr>
<th>Month/Year</th>
<th>06/93</th>
<th>12/93</th>
<th>06/94</th>
<th>12/94</th>
<th>06/95</th>
<th>01/96</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numbers of Web Sites</td>
<td>130</td>
<td>623</td>
<td>2,738</td>
<td>10,022</td>
<td>23,500</td>
<td>100,000</td>
</tr>
</tbody>
</table>


It was the Internet that put an end to Zhang’s ambition of becoming a physicist. He now wanted to do something else. In early 1994, he had to choose between continuing his post-doctoral studies at MIT and finding a job. Many of his fellow students had left school to work for Wall Street firms or strategy consulting companies. But Zhang felt a different pull, and several years later he still became excited recalling his decision. “I just felt that the Internet was great … Look at what a wonderful thing email is!” Zhang expressed his satisfaction at not becoming an ordinary businessman:

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282 The server, called the Student Information Processing Board (SIPB), helped net users explore online resources at MIT. See Wes Sonnenreich (1998): A History of Search Engines. (http://www.wiley.com/legacy/compbooks/sonnerreich/history/htm)
283 In 1991, Paul Lindner and Mark McCahill at the University of Minnesota developed Gopher, the first text-based, menu-driven interface to access Internet resources. Before Gopher, Internet users had to understand complex computer commands to use the Internet. Gopher changed the situation. That same year, CERN, the European Laboratory for Particle Physics (CERN stands for Centre European pour la Recherche Nucleaire, the original French name of the organization), released the World Wide Web, which made it possible for graphical access to the Internet. The initial Web was non-graphic, though, and it was Mosaic, the first online graphic interface, that changed the Web radically. See Gregory R. Gromov: History of the Internet and WWW: The Roads and Crossroads of Internet History (http://www.netvalley.com)
284 Personal interview with Charles Zhang, October 26 2001.
Thanks to my strong belief and interest in natural science, I stayed longer at MIT, when many of my Chinese friends had chosen alternative career paths. Since I was still at MIT in 1993 and 1994, I had a chance to learn more about the Internet and to sense opportunities for starting up an Internet business.285

Zhang began to draft his idea of starting an Internet business, although he knew nothing about writing a business plan. He named his proposed company Asiaonline.inc., unaware of the need first to register a domain name.286 Anxious for feedback, he began to circulate the draft among his colleagues. He even went to a friend at the MIT Media Lab, asking him how to set up a server that would execute his business ideas.

In 1994, the Web edged out Telnet,287 to become the second-most-popular service on the Net.288 There were already 10,000 websites worldwide (see Table 4.3.2), as commercialization of Internet technology began to emerge in the United States. Online shopping, such as Pizza Hut’s online services and online banks such as First Virtual Bank, had arrived on the Internet. The U.S. Senate and House of Representatives began to provide online information.289 In Massachusetts, the local municipal governments of Lexington and Cambridge had begun to be wired up to the

285 Charles interview, ibid.
286 Later, Zhang learned that a person from Hong Kong had already taken the domain name of “Asiaonline.”
287 Telnet stands for “Telecommunications Network.” Before the introduction of WWW, Telnet was once the second common way of connecting to computers on the Internet. Using Telnet requires understanding computer commands. Nowadays Telnet is much less used than WWW.
288 As measured by the percentage of packets and bytes traffic distribution on NSFNET (the National Science Foundation Network), which later became a major backbone communication service for the Internet. NSFNET was initiated by the U.S. National Science Foundation. In 1994, FTP accounted for the most Internet traffic, followed by the Web and Telnet. See Marc Abrams (ed.) (1998), World Wide Web—Beyond the Basics, Prentice Hall.
Internet. That April, David Filo and Jerry Yang, two Stanford University Ph.D. candidates, created the first online directory service—Yahoo!. In July, Lycos went public as a leading online search engine.

In April 1995, Zhang attended the Harvard University Annual Asia Conference. He recalled, "I got so excited about business developments in China ... I now became very serious about returning home." 

At the conference, Zhang bumped into Tyler Mason and his son Andrew. Tyler Mason had been interested in Asia for a very long time, and had already invested in a power plant in Macao and was planning on investing in another in Mainland China. Andrew Mason was graduating from the Harvard Business School (HBS.) Zhang began to talk about Asiaonline.com and got the Masons very excited about his idea. Andrew Mason then introduced Zhang to his classmate Gary Muller, a young entrepreneur also studying for an MBA at HBS. Muller worked as a research assistant for a professor who had acted as a reform policy advisor in Russia. Muller believed that there was great potential for Internet technologies in emerging markets. He was also thinking about starting a company called Europeonline Inc., which would specialize, in collecting information for people interested in doing business in emerging markets. Zhang shared with Muller his vision of Internet development in China.

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291 Personal interview with Charles Zhang, October 26, 2001.
Although Zhang dreamt of starting an Internet-related business in China, he felt that he needed to develop some connections before moving on his ideas. Zhang’s thesis advisor recommended him to MIT’s president. In early 1995, Zhang left behind his post-doctoral studies to become the MIT Liaison Officer responsible for developing partnerships with China. This provided Zhang with plenty of opportunities to establish connections both at MIT and in China. Frequent visits to China made Zhang feel a permanent return was just around the corner. He prepared for his chance to take action.

By this time, Muller had already transformed his business ideas into an Internet startup. He changed the name of his young company from Europeonline Inc. to Internet Securities Inc. (ISI.) In September 1995, ISI already had more than 20 employees and had received a US$1 million investment from a Boston-based venture capitalist. Having established operations in Poland and Russia, ISI was now seeking to expand to India and China. Muller told Zhang, “We need somebody working on China.”

In November 1996, Zhang joined ISI and soon was sent to China as the area representative. Zhang hired his first employee in Beijing. He developed relationships with local organizations in order to provide China-related information to ISI. In less than six months, Zhang had expanded his operation to more than ten people and had established business relationships with major Chinese news agencies such as Xinhua News Agency (新华社) and China Daily (中国日报), as well as with some

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292 Personal interview with Charles Zhang, October 26, 2001.
government offices such as the China State Information Center (中国国家信息中心), and the Ministry of Chemistry Industry Information Center (化工部信息中心). He collected general information and business data provided by these organizations and sent it to ISI’s U.S. headquarters. “This was my first startup practice,” Zhang said. The experiences in establishing ties between ISI and state-owned institutions later enabled Sohu to deal successfully with regulatory agencies and build relationships with media companies.

Zhang, though, had never abandoned his dream of starting his own company, despite having no crystallized business plan. In April 1996, Zhang returned to the United States to attend ISI’s corporate meeting. He made an appointment with Edward Roberts, a well-known MIT professor in the area of technology management and entrepreneurship and reputed to be a successful angel investor. Zhang showed Roberts his notebook explaining how he had successfully dealt with important Chinese organizations to acquire rich information for ISI. Roberts was attracted by the young entrepreneur’s enthusiasm, despite the absence of a concrete business plan.

“I was crazy,” Roberts recalled. Without Zhang even having a written business plan, he agreed to provide some seed money as long as Zhang could find another investor. In July 1996, Zhang again visited the United States, trying to put together a business plan. That August, he registered Internet Technologies China Inc. (ITC) in Delaware. Meanwhile, Zhang continued his search for other angel investors. In

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293 Charles interview, ibid.
295 ITC was renamed Sohu.com Inc. in September 1999.
August, Zhang met Nicholas Negroponte, co-founder of the MIT Media Lab and author of the international best-selling book *Being Digital*. Convinced by Zhang of the potential of an Internet startup in China, Negroponte was willing to invest. By November 1996, Zhang had received US$152,000 in seed money.

Zhang could now begin to put his company together, with himself and Roberts as the Board of Director, with a Boston lawyer and a Boston bank account. However, he still did not know what kind of business he would build. He tried different things, such as Web page design, domain name registration services, and distribution of Israel’s Internet firewall products. Roberts recalled:

> When Charles came to me in 1996, he did not know exactly what he was going to do ... He was totally vague. He had a list with 15 to 20 possible different things ... from preparing Chinese students for college examination to sports. ... He was only able to tell me that he was going to start an Internet firm in Beijing. He then went back home and was thinking about starting an ISP. Three months later, he came to me, saying that there are already too many ISPs. I am going to do something else.”²⁹⁶

In late 1996 and early 1997, Zhang Shuxin, another Chinese Internet pioneer, was aggressively promoting her idea of the “Internet Highway” through her ISP operation—IHW.²⁹⁷ Chinese users were beginning to find out about Internet technology and its applications. In January 1997, Zhang’s ITC launched its website, “China Industry and

²⁹⁷ See 4.1. for details.
Commerce Network” (http://www.itc.cn.net). Based on his experience with ISI, Zhang was trying to make this website a source of business-related information. Except for a few links to other Chinese-language websites, and an electronic version of Being Digital, there was not much information available, and the website was mainly used as a public relations tool for ITC’s website design businesses. A month later, when Zhang visited the United States, he showed ITC’s website to Yahoo! co-founder Jerry Yang. “Jerry was not impressed at all,” Zhang recalled.298

At the time, Zhang was still working part-time for ISI. He had an agreement with ISI going back to May 1996 that he would continue to act as the company’s China representative while exploring his own business opportunities.

Email transfer of data collected from China to ISI’s U.S. headquarters usually took a very long time. The dial-up method also made it inconvenient to connect to the Internet. To improve the situation, Zhang began to negotiate with the Beijing Telecom Administration (BTA) to put a server for both ISI and ITC at BTA. The BTA had just become the administrator for the central hub of international exit circuits for ChinaNet, China’s first national Internet backbone.299 The BTA had no hosting service experience and no one was familiar with the concept of the Internet Data Center (IDC). Local ISP companies,300 such as IHW, EastNet, and Read Online, each had rented a 64K proprietary line from the BTA to dialup to the Internet. Since ChinaNet then had only a very simple website, the BTA was

299 In May 1995, the Ministry of Posts and Telecommunications began to construct the ChinaNet backbone network, an Internet-based public computer network operated by China Telecom. In early 1998, all the provincial capital cities were connected to the ChinaNet backbone network. At the same time, ChinaNet installed international exit circuits in Beijing, Shanghai, and Guangzhou.
300 There were about 20 in Beijing at the time.
unable to attract visitors. Zhang convinced the BTA to act as server host by promising to share online content from ISI and ITC, and thus brought the first server hosting business to the BTA. Later, when Sohu went public, the company leased two 100 Mbps circuits from the BTA that connected to the ChinaNet backbone network.\textsuperscript{301}

In February 1997, Zhang began to write his business plan for further fundraising. However, the direction of development still remained unclear. In March 1997, one of ITC's angel investors, Nicholas Negroponte, visited Beijing. Dissatisfied with ITCs having no clear direction of development, Negroponte suggested to Zhang that he should visit some U.S. Internet companies such as Wired, which was the first to introduce online banner advertising in October 1994.\textsuperscript{302} In May 1997, Zhang visited AOL, Wired, and Yahoo!, on a trip arranged by Negroponte and Roberts. Zhang was also introduced to Robert Reid, a good friend of Andrew Mason, and the author of \textit{Architects of the Web}.\textsuperscript{303} Reid suggested to Zhang that providing directory services was a promising business direction to take. However, Zhang was mainly impressed by Wired, one of the most influential Internet companies in the United States at the time. \textit{Wired} magazine, one of Wired's main businesses, had seen its circulation increase to 300,000 in three years. HotWired, one of the company's main websites, was considered a pioneer of advertising-based web content in the United States. From Wired, Zhang learned about online advertisement and content development.

Immediately upon his return to China, Zhang began to explore online advertising opportunities. In March 1997, Chinabyte, an IT-focused online content provider initiated

\textsuperscript{301} \textit{Prospectus:} 60.
\textsuperscript{302} Wired sold all of its web sites, including the HotBot search engine, HotWired, and Wired News, to Lycos in October 1998.
jointly by the News Group and the People's Daily, made US$3,000 from doing an online advertisement for IBMAS400. But the concept of online advertising was still unfamiliar to most Chinese people. In September 1997, Sohu had its first online advertisement with the Beijing Niulanshan Distillery (BND), one of ITC’s clients for its web page design business. The six-month contract with the BND brought ITC its first online advertising income of US$9,000. Later, ITC signed its second online advertising contract with Ericsson-China, another ITC web design client. Zhang also convinced a friend at Northwestern Airlines to advertise on the ITC website.

At the same time, Zhang tried to increase the content on the ITC website and advocated the “content focus” (内容为王) model through the media. Zhang and his colleagues created a links page called “Cyber Space” with (赛博空间) links to local ISP companies. He also sought to convince some popular magazines to allow ITC to use their content. For example, Zhang asked permission of Fiction Monthly, one of the most famous contemporary literature journals, to use its novels. However, traditional media companies saw no benefit in sharing their content with ITC, and in the case of Fiction Monthly ITC failed to reach an agreement because it could not afford the price. Eventually, though, Zhang did persuade another popular magazine, Shopping Guide, and obtained permission to use its content for free.

By 1997, the number of websites in China had mushroomed to 1,500 (see Table 4.1.6). However, despite ITC’s effort to add more online content, the site was not attracting visitors effectively. Zhang began to reconsider whether copying Wired’s “content focus” model was

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307 1997. Published by John Wiley & Sons, Inc.
the right path. In July 1997, Andrew Anker, Wired’s co-founder and CEO, visited Beijing, and Zhang learned that half of Wired’s employees were reporters and columnists who wrote for the company’s magazine and websites. To a very large extent, it was original content that made Wired successful. Zhang realized that it was difficult to copy the Wired model since it was impossible for ITC to create its own content—it would be too expensive to hire professional columnists.

In July 1997, Zhang and his colleagues found that Cyber Space was more popular than other ITC website pages. This hinted that a Chinese-language online directory service could have potential. Zhang emphasized:

In Chinese, we say, by taking a glance, one reads ten lines (一目十行). When we read Chinese, we are able to browse everything on the page by just taking a quick look. Thus, a Chinese directory should be very useful for Chinese Internet users.

Zhang further thought that if sharing was the essence of the Internet, people would never just stay in one place and read. It would obviously be hard to hold visitors to one website no matter how good the content. Thus, it would be more realistic if the company could lead visitors through links to a variety of content originated by other organizations and individuals.

At the time, Yahoo! was becoming a big name among Chinese Internet users. However, most Chinese people thought Yahoo! was an online search engine, overlooking its directory function, the core aspect of the Internet portal. One major reason is that for the Chinese—

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304 Andrew Anker left Wired in February 1998.
speaking population, the English directory did not appear attractive since it was difficult for a Chinese reader to pick up desired information quickly from so many categories.\textsuperscript{306} Reading English was not easy; and there were also different understandings about how to categorize online content. However, the keyword search method employed by online search engines was much easier for Chinese users to operate.

Zhang and his colleagues decided to build the first Chinese-language directory service.\textsuperscript{307} In the process, they renamed Cyber Space the “ITC Compass” (爱特信指南针). While planning a course of action, Zhang asked Wang Jianjun (王建军), a part-time employee and college lecturer, to build a comprehensive directory. Wang tracked and categorized Chinese language websites, which were increasing dramatically during this period. Zhang also asked Wang to study the library system of Beijing University. Meanwhile, they observed U.S. online directories such as Yahoo!. Gradually, Wang began to organize online information based on a combination of methods used in Chinese library systems and major English online directories. Content in categories such as “Education” and “Military” easily matched those in Chinese library systems. However, this library system was not able to reflect some characteristics of the Internet, which Zhang called “life trends.” For example, “Cars” in the library system would be categorized under “Industry” or “Manufacturing.” But most Internet directories placed “Cars” “Lifestyle.” In addition to combining the library system and English online directory features, Zhang and his colleagues were also aware of differences between Chinese and Western lifestyles. For example, “Bicycles” would be categorized under “Recreation” or

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{305} Personal interview with Charles Zhang, November 3, 2001.
\item \textsuperscript{306} The early Chinese Internet population consisted of people with strong educational backgrounds. Thus, most early Internet users were able to use English websites.
\item \textsuperscript{307} In May 1998, almost a year later, Yahoo! released its Chinese language directory.
\end{itemize}
\end{footnotesize}
"Leisure" in English online directories. But in China, "Transportation" would be a more suitable category, since bicycles are the most ubiquitous form of transit in the country.

Soon, the ITC Compass had incorporated several thousand links to Chinese language websites. In September 1997, the phrase "search engine" appeared in Zhang’s newly drafted business plan for potential institutional investors such as Intel. By November 1997, the directory service group had increased to three people. The company began to consider making Chinese-language directory services a core business. Chen Jiangfeng (陈剑峰), Sohu’s vice president, suggested renaming ITC’s website “Soho”, following the lead of Yahoo!. Soho’s Chinese name stands for “Do you want to do a search?” (搜乎). Later, Chen Jiangfeng came up with another Chinese name for the website—"search fox" (搜狐). ITC eventually chose this vivid name, since the animal image of the fox was thought to "match up Chinese Internet pioneer users’ lifestyle at the time: alternative, non-mainstream, and breaking new ground."308 Zhang continued to write his business plan. He recalled:

We had tried very hard to find a suitable business model ... I spent all of 1997 trying to write up a business plan. I felt that I was not writing the plan by pen; the company’s daily practices were sorting out what to write.309

By the time ITC finally worked out its direction of development, it found itself financially strangled. Deals with institutional venture investors had not yet been finalized at the end of 1997. The company could not even pay salaries on time. Zhang had to ask Roberts and his other two initial investors for a loan to cope with the financial crisis. Nevertheless, ITC’s

management decided to hold a large news conference to promote itself as the first Chinese-
(http://www.sohoo.com.cn), which was renamed Sohu.com a year later.\textsuperscript{310} The promotion was
very successful. Since then, China’s Internet community has viewed Sohu as a “search
engine.” Zhang explained why he promoted the concept of the “Internet search engine”
instead of the “online directory”:

I did this on purpose. Since the regulatory agencies were not clear yet, it was
better for us to emphasize technologies such as the Internet search engine.
Being just a technology company would protect us from regulatory scrutiny.
Directory service is about providing online content. The risk was too big. At
the same time, I did not want our competitors to understand that Sohu was in
fact an online directory\textsuperscript{311}

By now, ITC had finally decided on on a clear business model to specialize in a Chinese-
language directory and online search functions, a concept formulated by Yahoo! in 1994.\textsuperscript{312}
ITC’s marketing slogan—“Americans use Yahoo!, Chinese use Soho”—was effective in
attracting Chinese net users. The number of visitors soon increased to 20,000 per day.\textsuperscript{313} In
April 1999, Sohu was voted the most popular search engine in a CINNIC survey. By March
2000, Sohu had turned its online directory into the leading directory in the country, containing
more than 300,000 Chinese-language Web listings under 18 main categories such as Arts,

\textsuperscript{309} Personal interview with Charles Zhang, October 26, 2001.
\textsuperscript{310} ITC changed the site name to Sohu because the domain name of sohoo.com was already taken.
\textsuperscript{311} Personal interview with Charles Zhang, November 3, 2001.
\textsuperscript{312} In the beginning, Yahoo! created an online directory by categorizing web links manually. Later, Yahoo!
introduced the search engine technology and automated some of its classification processes, combining the
search engine and directory services.
Business/Finance, Education, Health, News, and Travel.\textsuperscript{314} Entering 2001, this number had increased to 2.5 million. In May 2000, Sohu topped the list of Chinese-language search engines in a consumer survey conducted by the "ZhongGuanCun Third Computer Festival."

In early 1999, Zhang initiated a project called "Content and Technology 2000," which emphasized ITC's content and technology improvements. Zhang claimed that Sohu would grow as a content provider, a model that he had abandoned in 1997 in favor of online directory services and search functions. He said:

\begin{quote}
Chinese users had shown a much stronger desire to acquire information from the Internet. At the same time, since the slow speed of opening other websites made Chinese-language directory and search functions unsatisfying, developing rich content became crucial.\textsuperscript{315}
\end{quote}

Zhang believed that Sohu could solve this problem by collecting content from traditional media and online sources. By doing so, users did not need to go through the hassle of slow connections to get information. However, unlike Wired, such a model did not require the online content provider to create original content. Besides, "it was feasible for young Internet companies like ours to obtain contents from traditional media companies—the cost is very low," said Zhang, explaining the rationale behind the new move.\textsuperscript{316} Since it was a reality that in China people did not take the copyright rule seriously, it was possible to acquire rich information from state media organizations without paying a fortune. For instance, in China

\textsuperscript{313} Sohu data.
\textsuperscript{314} Sohu data.
\textsuperscript{315} Personal interview with Charles Zhang, November 16, 2001.
\textsuperscript{316} Charles interview, ibid.
there is a popular magazine, DuZheWenZhai (读者文摘; Reader's Digest in English)\textsuperscript{317} that reprints articles from various newspapers without paying a copyright fee (in the United States, with its strict copyright laws, it is hard to find a similar journal). In exchange for information, Sohu offered traditional media purveyors a price per article of 15% of the revenue that would be generated by the banner advertising attached. Sensing the increasing popularity of the Internet, traditional media companies began to see the potential of online advertising. By the end of 2000, hundreds of traditional media organizations had become affiliated with Sohu. Zhang confirmed:

Since we did not have financial resources, we focused on targeting the traditional media. Financial constraints did not prevent us from building content channels.\textsuperscript{318}

Sohu then began emphasizing its status as a content “aggregator” rather than “provider.” Given that government regulatory agencies had banned Internet content providers from offering original content in many areas such as political news, this strategy protected the company from scrutiny. This “content aggregating” model, namely gaining content from both traditional media and information on the Internet, was soon adopted by other local Internet players. For example, Sina was particularly successful in implementing this model (see previous section). Soon the content gained from traditional media sources formed the basis for Sohu’s online channels such as Finance, Music, Sports, and Women. By the summer of 2000, average daily page views reached two million. Sohu quickly became one of the biggest portal sites in China (see Table 4.3.1)

\textsuperscript{317} In September 1989, the magazine was renamed Readers’ Digest Monthly.
Unlike its rival, Sina, Sohu had focused on the Mainland China market. As mentioned earlier, Zhang had "missed" an opportunity in October 1998 to merge with SinaNet of America to form the world's biggest Chinese-language Internet portal. Later, though, Zhang confirmed that not joining SinaNet was consistent with Sohu's strategic focus:

After [the merger between SRS and SinaNet], [Sohu's management] discussed whether we really missed an opportunity. [Sina] ended up with the concept of a "global Chinese community," but we always believed that as a cultural product, it is impossible for an Internet portal to cover different countries and regions worldwide.

Nevertheless, Sohu began to make efforts to localize portal editions in major cities across Mainland China. In 1998, Sohu established its branches in Shanghai and Guangzhou, and in 2000 the company continued to launch local sites in other big cities. Each individual local edition offered up-to-date localized content to accommodate the country's regional differences. For example, the Shanghai edition offered the latest local news, online search, entertainment, travel, and community features, including a BBS and a chat room. By the end of 2000, Sohu.com had developed 30 local editions of its web portal site.

4.3.2 A Market Educator

Compared with the other two major Internet players studied here, Sohu's has been the most aggressive marketing strategy. Wang Zhidong and Ding Lei, founders of Sina and Netease,
enjoyed their reputations as being excellent technicians and were well supported by early
generations of Chinese Internet users, most of whom were engineers in computer-related
fields. Charles Zhang had no IT background. However, this did not prevent Sohu from
standing out as one of the most influential players in China’s Internet market. Sohu has been
at the forefront of introducing and promoting new trends, concepts, and business models in
China’s Internet sector.

Like Liu Chuanzhi at Legend, Zhang understood well that a private company in China needs
a big name if it is to be shielded from government interference, and to cope with the
ambiguous regulatory environment. “Once you get famous, the government will be unable to
control you that much. So, from the beginning, I wanted to make Sohu a big name,” Zhang
emphasized.\footnote{Sohu data.}

The first successful marketing campaign for Sohu occurred in early 1997, when Negroponte
was invited to Beijing. Through the media, and working together with IHW, the best-known
Internet company at the time, ITC successfully made a blockbuster out of Negroponte’s Being

digital, which was a U.S. bestseller but was unknown to Chinese people. By demonstrating
that the company was well connected to overseas expertise, ITC won initial visibility in the
young Chinese Internet community.

It was unusual for young people with overseas backgrounds to start a business in China, as
did Charles Zhang. The majority of Chinese students in the United States remained there after
graduation; only a small portion returned to China as representatives of foreign companies.

\footnote{Personal interview with Charles Zhang, July 19, 1999.}
Sohu effectively established a business presence by highlighting Zhang’s profile. Chen Jianfeng, who was in charge of Sohu’s public relations at the time, said:

We decided to use Charles’s unique personal experiences to market our company. Every time the press visited Sohu, we always tried to arrange for them to meet with Charles. We wanted to spread his unique background.\(^{323}\)

Zhang seized every opportunity to promote his young company. When in 1998 he was invited for the first time to appear on a talk show at the China Central Television (CCTV), he continually looked into the camera and repeated Sohu’s marketing slogan: “Going to the city you need a map, going to the net you need Sohu.” Zhang attributed his self-promotional emphasis to what he had experienced in the United States. He recalled:

When I was in the States, I always saw Michael Dell promoting his company by using his own image. In the beginning I did not like it. I could not understand why he was doing so since I was not used to such self-promotion, which was not seen as a virtue in Chinese tradition. However, having lived in the States for a while, I realized that what Dell did was a great way of conducting effective marketing.\(^{324}\)

Consequently, Zhang’s stories spread widely through different media channels such as newspapers, TV programs, and magazines. The young company soon commanded enormous

\(^{323}\) Personal interview with Chen Jianfeng, August 12, 1999.
\(^{324}\) Charles interview, *ibid.*
media attention, and Zhang and Sohu became a "cultural phenomenon" in urban living on the Internet in China. The media joked that instead of the "attention economy," Internet business in China was about the "Zhang economy." After two years of operation, the young company had achieved tremendous market recognition without spending any extra money on marketing and advertising (Table 4.3.3). As Zhang commented:

We promoted the Sohu brand by telling people my own stories. By doing so, we saved a lot money for the company ... you know, we did not have a sufficient marketing budget ...  

| Table 4.3.3 Sohu’s Expenses in Sales, Marketing, and Advertising (in US$ thousands) |
|-------------------------------------|----------------|----------------|----------------|----------------|----------------|
|                                    | Year Ended     | Three Months Ended |
|                                    | 12/31/97       | 12/31/98       | 12/31/99       | 03/31/99       | 03/31/00       |
| Sales and Marketing Expenses       | 94             | 351            | 1,758          | 126            | 1,533          |
| Advertising Expenses               | 0              | 0              | 597            | 0              | 652            |

Source: Prospectus

Zhang also had continued to emphasize the importance of the company’s self-promotion, and Sohu quickly built up strong marketing muscles. The company continually developed novel ideas for its marketing campaigns. In 1999, Sohu began a campaign to promote its email services. The company cooperated with Starbucks, which had just come to China and had quickly attracted young people with its trendy image. An advertisement titled “Start free, continue free” ran in the Southern Daily, a popular newspaper, and offered anyone who

325 Charles interview, ibid.
326 Charles interview, ibid.
327 因为免费，所以免费.
registered for a Sohu email account a free cup of coffee at Starbucks. The marketing campaign was very successful.

Sohu’s aggressive marketing efforts made it a well-known name among Chinese people, including those who had no online experience. As one Chinese “Net Worm”\textsuperscript{328} commented, “Many people first got to know Sohu and then started to know about the Internet.”\textsuperscript{329} With its strong marketing, Sohu introduced many new concepts and business practices to the young Internet community in China. In many cases, even though it may not have been the first to put new business models into practice, Sohu was certainly the one that promoted these models.

For instance, Sohu was not the first search engine in China, but the company successfully promoted the concept and made itself a top “Chinese-language online search engine.” When Sohu launched its directory and search functions in early 1998, other companies such as Sina and Netease had already been offering Chinese-language search engine functions for some time (see Table 4.3.4). Similarly, Sohu was not the first to employ the online advertising model. In April 1997, ChinaByte posted the first online advertisement in China for an IBM product—IBMAS400. But again, it was Sohu that advocated this business model. In July 1997, Sohu successfully introduced business concepts such as “content focus” and “banner advertising” to the Chinese Internet public through the company’s immense public relations effort undertaken for Wired’s co-founder and CEO Andrew Ankers’ visit to Beijing.

\textsuperscript{328} The Chinese term for an “Internet geek.”
\textsuperscript{329} Personal communication with a pioneer Chinese Internet user, July 2000.
### Table 4.3.4 Chinese-language (GB) Online Search Engine Development

<table>
<thead>
<tr>
<th>Companies</th>
<th>Sina</th>
<th>NetEase</th>
<th>Tonghua</th>
<th>ChinaByte</th>
<th>Go Yoyo</th>
<th>Sohu</th>
<th>Yahoo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Launch</td>
<td>7/96</td>
<td>5/97</td>
<td>8/97</td>
<td>11/97</td>
<td>11/97</td>
<td>2/98</td>
<td>0/99</td>
</tr>
</tbody>
</table>

**Source:** Various sources

As an overseas seed investment prototype, Sohu, together with companies such as Sina, influenced many second-generation Chinese high-tech companies in obtaining overseas capital. Again, Sohu effectively spread the concept of venture capital and fundraising through its own stories. For instance, in April 1998, it publicized its fundraising experiences in a press conference. In 1998, when the concept of the “Internet portal site” became popular in the United States, Sohu became the first to introduce the model in China. That February 15, when the company changed its name from “Sohoo” to “Sohu”, it claimed to be the first portal site in China. Following Sohu, many other local players such as NetEase and SRSNET\(^\text{330}\) adopted the “portal sites” model, changing their homepages on September 22 and October 20, 1998, respectively.\(^\text{331}\) Sohu also contributed to the establishment of industrywide standards for measuring Internet traffic. Before 1999, “hits” had been widely used in China as the measure of website traffic. Zhang suggested to Mao Wei (毛伟), the head of the CNNIC, which held

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\(^{330}\) SRSNET was renamed SRSonline.

\(^{331}\) See Sections 4.2. and 4.4. for details.
the authority to audit website traffic in China, that “average page views” would be a more
accurate way of counting visitors.

Sohu has established a strong middle management team, which has contributed to the
company’s daily business. For example, many marketing ideas were originated by Chen
Jianfeng and several regional offices were built from scratch by He Jinmei (何劲梅). Zhang
commented:

They have made huge contributions to the company. But it’s hard for foreign
shareholders to understand their value because local managers do not speak
fluent English and are not good at power point presentation.332

To some extent, Sohu has also fostered a talent pool for other Chinese Internet startups. Chen
Jianfeng, who played a very important role in Sohu’s early development, was later hired by
Netease. Zhang Ligang (张黎刚), a Harvard graduate student who had worked at Sohu as
content manager, would co-founded an Internet portal, Elong.com., after he left Sohu. Above
all, Zhang acted as a role model for overseas Chinese students. In the late 1990s, following
Zhang, hundreds of overseas Chinese students and professionals retired home to join the
Internet startup boom.

4.3.3 Western Connections, Overseas Venture Capital, and the IPO

Unlike the other two portal sites studied here, Sohu has been operating under very strong
Western influences since its founding. The company was founded with U.S. venture capital,

332 Personal interview with Charles Zhang, November 17, 2001.
and most board members and executives have been Westerners or overseas Chinese (Table 4.3.5). Although the board has tried to involve some native Mainland Chinese members, such as Mary Ma and Charles Huang, but they have not been influential, and "the board is still Western." This strong tie to Western business culture and practices provided advantages for the young company in fundraising, management improvement, IPO preparation, and so on.

### Table 4.3.5 Sohu's Directors and Executive Officers (As of July 2000)

<table>
<thead>
<tr>
<th>Name</th>
<th>Nationality</th>
<th>Position (Period of position)</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles Zhang</td>
<td>China</td>
<td>Chairman, President, and Chief Executive Officer</td>
<td>MIT (USA) graduate</td>
</tr>
<tr>
<td>Edward Roberts</td>
<td>USA</td>
<td>Director (9/96 – )</td>
<td>David Sarnoff Professor of Management, MIT Sloan School of Management</td>
</tr>
<tr>
<td>James McGregor</td>
<td>USA</td>
<td>Director (8/98 – )</td>
<td>Vice President, China, Dow Jones &amp; Company</td>
</tr>
<tr>
<td>George Chang</td>
<td>Hong Kong, China</td>
<td>Director (1/00 – )</td>
<td>Director of the Morningside Group</td>
</tr>
<tr>
<td>Mary Ma</td>
<td>China</td>
<td>Director (3/00 – 12/00)</td>
<td>Executive Director and Senior President of Legend Holdings Ltd.</td>
</tr>
<tr>
<td>Thomas Gurnee</td>
<td>USA</td>
<td>Chief Financial Officer and Senior Vice President, Finance (1/00 – )</td>
<td>Vice President of Chartered Semiconductor Manufacturing Ltd.</td>
</tr>
<tr>
<td>Alan Li</td>
<td>Hong Kong, China</td>
<td>Chief Operating Officer (3/00 – )</td>
<td>Executive Director of Oracle China</td>
</tr>
<tr>
<td>Victor Koo</td>
<td>USA</td>
<td>Senior Vice President (12/99 - ) Chief Financial Officer (3/99 – 12/99)</td>
<td>Vice President of Richina Group</td>
</tr>
<tr>
<td>Edwin Chan</td>
<td>Hong Kong, China</td>
<td>Senior Vice President of Marketing and Sales (9/99 - )</td>
<td>Founder of an advertising agency</td>
</tr>
<tr>
<td>Gary Zhao</td>
<td>China</td>
<td>Vice President of Finance (1/00 – )</td>
<td>Senior positions with Motorola Corporation</td>
</tr>
<tr>
<td>Xin Ye</td>
<td>China</td>
<td>Vice President of Technology (5/00 – )</td>
<td>Senior position with a number of Silicon Valley technology firms</td>
</tr>
</tbody>
</table>

*Source: Prospectus*
In particular, the company's only founding director other than Zhang, Edward Roberts, co-founder and director of many high-tech companies and venture capital funds (including Zero Stage and First Stage Capital Equity Funds), has played an important role in Sohu's development. As a sophisticated investor, entrepreneur, and management professor at MIT Roberts has provided ongoing managerial tutoring for Zhang, who did not have much prior business experiences. Roberts recalled:

> There are so many things—finance, auditing, accounting, legal—which are not areas of my special expertise, but they are just things I knew had to be done from having served on a large number of boards [of directors] for a long period of time. I couldn't give [Zhang] technical answers as what was the correct way to handle something, but I could give him policy answers, namely, this is the issue you need to sit down with the accountant to work through.\(^{334}\)

When the company started, Zhang and Roberts decided that they should target Nasdaq for further growth and wealth development. Consequently, building a company acceptable to the West, by establishing managerial systems such as internal financial and accounting practices, became the central theme from the first day. But in the beginning, Zhang did not grasp the importance of following Western rules strictly. His only business experience had been with ISI, which did not provide him opportunities to operate a standalone business. Rather, he created collections of financial data for ISI through informal agreements established face-to-

\(^{334}\) Personal interview with Edward Roberts, November 12, 2001.
face with local organizations. From Roberts’ point of view, such agreements were “not legally defined agreements.” Roberts insisted:

That [not legally defined agreements] may be fine for ISI. But I told Charles: None of that works for us. You cannot do that if you want to build a standalone company. ... You must have a Western auditing firm. You got to have a Western-capable lawyer who knows all the regulations and rules of conducting business in the West.

If [Zhang] ever had hopes of getting Western financing, going public in Western markets, [the IPO] would be carried out by the lawyers, underwriters, and such. They would look at the company’s documents ... they would say, we are not backing a company that doesn’t have a legal basis. ... They have to take a stance that they are willing to underwrite you.335

Accordingly, the board began to push Zhang to make the operation meet Western standards for accounting, finance, and legal regulation. Roberts also helped Zhang obtain other basic knowledge of operating a company. For example, Zhang wanted to hire a person with investment banking experience to head Sohu’s corporate finance department. Roberts would have to explain to Zhang the difference between Wall Street finance and corporate financial management. He also taught Zhang how to deal with external relationships, such as negotiating with potential investors. In addition, Roberts has provided Zhang with many U.S. connections. For example, when the company was struggling to obtain its first major round of

financing, Roberts and Negroponte connected Zhang with important institutional investors such as Intel.

In addition to the board, Roberts believes that Western managers\textsuperscript{336} have also brought operational knowledge to the company, although some of them did not stay long with Sohu. He gave an example:

[Thomas Gurnee] taught Charles a lot of things about planning and control. ... He was a stickler for cost control and tightness on budgets, all of which Charles was resisting because he thought it was unnecessary. Tom gradually moved those things into place, and gradually began to teach Charles, not by formal teaching but by demonstrating that these are good things ... He would fight Charles massively. Charles would say he had decided to do something, and then Tom would ask: "Where is your budget? Where is the proposal?"\textsuperscript{337}

Strong Western influence indeed established Sohu as a "reasonably well organized, reasonably well-managed"\textsuperscript{338} technology firm. The board began feeling satisfied with the improvement, and Roberts praises Zhang for these advances:

Now they have budgets and headcount for everything. ... In the last year and a half, Charles changed to become very serious about managing cost. ... He accepted the fact that every new proposal has to be budgeted explicitly, with a detailed business plan.\textsuperscript{339}

\textsuperscript{336} By "Western managers" we mean managers who have extensive work experience with overseas companies.

\textsuperscript{337} Personal interview with Edward Roberts, November 12, 2001.

\textsuperscript{338} Edward interview, \textit{ibid}.

\textsuperscript{339} Edward interview, \textit{ibid}.
At the beginning of 1999, when pressure from rival Internet companies such as Sina and Netease intensified, the board of directors expanded from two people, Zhang and Roberts, to a five-person group (See Table 4.3.5). Since most board members were not located in China, communications were conducted primarily through phone calls and email. Internal conflicts began to arise because of cultural differences, and some board members’ strong personalities also made it difficult for the board and Zhang to establish mutual trust. Roberts recalled:

Charles would argue: “[the Western board] don’t understand, you don’t need to do that in China.” He always makes statements about how things ought to be in China. Nobody on the board was from China except for Mary Ma, who was there for a period of time but was not active. Charles would feel annoyed because we were telling him that he had to do things he thought would be foolish and a waste of time. 340

Zhang, on the other hand, believes that many board decisions were made based on a misunderstanding of China’s situation. For example, in 1999, when the young company desperately needed financial support, its Western board members rejected Zhang’s proposal to introduce capital from local firms such as Shanghai Information Investment Inc. (SII). 341 The Western board assumed that firms such as SII, which has a strong government-related background, would have a negative impact on the company. Zhang believed that the board did not properly understand the subtleties of doing business in China. It is common sense in China that having government connections allows a company to obtain understanding and

340 Edward interview, ibid.
support more easily from regulators. This lack of awareness of the local business environment on the part of the board, coupled with cultural differences that “could almost never be overcome,” deepened the gap between Zhang and his board. As a result, the board began to lose the confidence in Zhang’s ability “to manage seriously.” Zhang felt frustrated about not having a base of communication:

The culture thing was painful. If you have not grown up in this land [China], you would never get it. So how could I be able to convince them? ... They needed to just trust me.

Such conflicts sapped enormous energy from the management. Not only did Zhang feel overwhelmed, but Roberts also had to spend enormous amounts of time playing the “middleman.” Roberts commented:

That was the role I didn’t expect. I thought my role was helping Charles in building a company. I did not think my role was going to be as the intermediary to the interests of the parties.

Although the company had at last found a feasible business model, it began to fall behind Sina, Netease, and other companies in providing important online services such as chat rooms, email, personal web page hosting, instant messaging (ICQ), and virtual communities. Unlike Sina and Netease, which were founded by software engineers, Sohu had been in a relatively

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341 SII was founded in 1997 with registered capital of RMB 3 million. SII’s portfolio companies are mainly in areas such as telecommunications, Internet infrastructure, and e-commerce. The company has direct ties to the highest levels of the Chinese government.
342 Personal interview with Charles Zhang, June 19, 1999.
343 Personal interview with Charles Zhang, November 17, 2001.
344 Charles interview, *ibid.*
weak position in terms of technology. When Sohu was founded, Zhang hired an excellent technician, Victor Ku. But he did not try to channel this expertise into the company’s capability. “I did not realize how important technology was,” Zhang recalled.345

In 1999, Zhang finally realized that he needed to catch up in those areas by developing the company’s technology capacities. However, he “spent too much time coordinating the board ... and had no energy left for other things.”346 Consequently, although Sohu successfully marketed its free email system, poor technical support meant a failure in reliable service. In 1999, Sohu also began to develop an instant messaging system in cooperation with Insforian, a Taiwanese software company. However, when Insforian withdrew its development force in the middle of the project, Sohu once again was unable to offer a competitive technology. In early 2000, the newly released SOIQU instant messenger system failed to attract a good number of users.

Zhang’s admits that his biggest regret is that Sohu’s limited technical ability prevented the company from producing competitive email and ICQ systems: “We were losing our competitive edge in 1999 and 2000,” Zhang said.347 Meanwhile, Sina and Netease, Sohu’s two biggest competitors, had successfully developed their advantages in news services and online virtual community services, respectively.348 By June 1999, Sohu had slipped to second place in CNNIC’s regular surveys.

345 Charles interview, ibid.
346 Charles interview, ibid.
347 Charles interview, ibid.
348 See Sections 4.2. and 4.4. for details.
The presence of the Westernized board also caused problems when the company was negotiating with the government about its IPO in the United States. Sohu was facing challenges bigger than those faced by Sina and Netease as it sought permission to enter the overseas stock market. It was difficult for the government to trust a Western board; and neglecting local investment opportunities, such as from SII, had won the company few government connections. Zhang said:

When it came to going public, it was much easier for a local company, since one needed to know with whom to talk and which person needed to be convinced. It cannot be done as they do it in the States.

At the same time, it was also hard for Westerners to trust the government and to understand how to deal with an ambiguous regulatory environment. Many of the rules for doing business in China are implicit rather than explicit. For example, the nature of many existing regulations is often quite conditional, in contrast to the regulatory transparency in the United States. Western board members always insisted on seeing “legalized documentation” at every step in dealing with regulatory bodies. Thus, Zhang had to put extra and unnecessary effort into making things look “legal.” For example, if Zhang wanted to make the board feel comfortable about a particular motion, he had to find a bureaucrat to speak on the particular issue and have a lawyer confirm what the official said. Consequently, compared to Sina and Netease, Sohu was the last to complete its IPO, although it was the first to file with the U.S. Securities and Exchanges Commission (SEC) (see Table 4.3.6).
Table 4.3.6 IPOs on Nasdaq

<table>
<thead>
<tr>
<th>Company</th>
<th>Sina</th>
<th>Netease</th>
<th>Sohu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filling Date</td>
<td>03/27/00</td>
<td>03/28/00</td>
<td>02/4/00</td>
</tr>
<tr>
<td>IPO Date</td>
<td>04/13/00</td>
<td>06/30/00</td>
<td>07/12/00</td>
</tr>
<tr>
<td>Underwriter</td>
<td>Morgan Stanley Dean Witter</td>
<td>Merrill Lynch &amp;Co. Deutsche Alex Brown</td>
<td>Credit Suisse First Boston</td>
</tr>
<tr>
<td>Amount of American Depositary Shares (in millions)</td>
<td>7.82</td>
<td>4.5</td>
<td>2.3</td>
</tr>
<tr>
<td>Price per Share (in US$)</td>
<td>17</td>
<td>15.5</td>
<td>13</td>
</tr>
<tr>
<td>Founder CEO’s Share</td>
<td>Wang Zhidong 6.3%</td>
<td>Ding Lei 58.5%</td>
<td>Charles Zhang 33.6%</td>
</tr>
</tbody>
</table>

*Source: US SEC*

This difficult situation was very discouraging. "It had been so difficult for me to gain credibility ... under the pressure, I almost gave up the company," Zhang admitted.

[When it came to dealing with the government] I think Sohu was facing much a bigger challenge than its rivals ... I had to communicate between the government and my own board. Since the board was so Westernized, I had to try hard to make the government understand us. At the same time, the board had no idea of how to deal with the regulator, since there was a big gap between Chinese ways of doing things and Westerners’ logic. So, I had to
explain everything to them and try to convince them to accept Chinese ways of doing things. It was an extremely tough situation for me.  

Roberts observed from another angle:

Charles would frequently find himself hearing serious concerns about things that he thought had to be dealt with entirely differently—he though that they had to be dealt with politically, quietly, or ignored, if he thought that they weren’t important. We would say: how could you say it isn’t important? You got the minister in charge of this agency making this speech; of course it is important. … You know, we ended up with great difficulties on going public. In fact, that changing character [of MII] wasn’t a law, it was an interpretation pronouncement. But all of that very fuzzy stuff had lasted for two years. Consequently, it created very high conflicts between the board, which was entirely Westerners, and Charles.

Zhang said that his biggest pressure was not the pressure from the Nasdaq but, rather, “the pressure that came from the misunderstanding of my investors.” He commented further:

Without this misunderstanding, Sohu would have developed faster … Here [in China] we like to take the “American Way” as the bible. This led us to copy everything from the U.S. However, China has its own situation. … As Internet startups, there was little experience to follow. Particularly when it comes to the capital market, it’s hard for native Chinese companies to get through. But

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349 Journalist interview with Charles Zhang. See “Juedui Zhenshi Zhangchao Yang (The True Charles Zhang),”
on the other hand, if one is too Westernized, it's hard to compete in the local market … Now [overseas] investors usually ask to change the management team as soon as they put money in. This is okay in Silicon Valley. But in China, where do you find well trained managers? Investors have experience. But they were American experiences, which cannot be applied to the Chinese scenario. Both Sohu and Sina believed too much in the so-called foreign management style. In the end, we found that we spent plenty of money setting hurdles up for ourselves.\footnote{Sohu News (http://news.sohu.com/78/69//news144516978.shtml), April 4, 2001.}

Like many other local Internet startups, Sohu began to hire professional managers as it expanded. For Zhang, young, smart, and highly motivated local managers are precious to the company. However, the board had a different opinions, believing that local managers did not “know anything a managerial the U.S. point of view.”\footnote{Journalist interview with Zhang: “Zhang Chaoyang Fangtan: Miandui Yali, Wozaí Jieshi (Interviewing Zhang Chaoyang: Under the Pressure, I Give An Explanation),” ZhongGuo JingYing Bao (http://www.gog.com.cn/mag41/20010403/c0art70157.htm), April 4, 2001.} Roberts said:

We [the Western board] would say that young and smart is nice but knowing things is also nice. … We would rely on the traditional Western view of competence: skill, knowledge, and experience, and say: “That is what you need, Charles.”\footnote{Personal interview with Edward Roberts, November 12, 2001.}

The board preferred people who had experience with well-known international firms. Yet, the board also considered Zhang’s principal criterion: the manager has to be Chinese, preferably Mainland Chinese. But it was very hard to find native Chinese people with the requisite
experience. By the time of the IPO, through a well-known American recruiting firm and at a very high cost, the company had hired a group of professional managers with Western backgrounds (see Table 4.3.5). However, managers who met the board’s requirement (for example, Alan Li, the former COO), did not necessarily make the expected contributions. As Roberts reported:

[Li] had a very good background on paper; all recommendations from his prior jobs were very strong. He seemed to be a smart guy and he had a very good track record. … We ended up hiring someone who had all those kinds of skills, knowledge, experience … and capabilities. However, he turned out not to be effective.

Zhang also commented:

I was pushed to hire professional managers, and finally I did. However, it has been proven that the Chinese situation is too special. Since the industry is not mature enough, there are no well-defined rules of doing business; you never solve problems based on what you learned from MBA textbooks or from your experience managing a Western company. … It’s also hard to rely on the numbers and analysis provided by consulting companies.\textsuperscript{353}

\textsuperscript{352} Edward interview, \textit{ibid.}
On the other hand, the current COO, Victor Koo, who is Chinese and also Western-trained (Stanford MBA) but was considered much less preferable by the board because of his limited experience, began to demonstrate his competence. Roberts noted:

Charles kept saying that Victor is good. We [the board] thought that Charles had made an inappropriate hiring decision. Basically, Charles hired [Victor] before even everybody had a chance to say anything ... But Victor started to pick up some important responsibilities. And, gradually, Victor started to demonstrate capabilities. It looked like Victor’s project was much more businesslike, with much better performance. Victor actually made statements of target, goals, and objectives. He would do what Western managers like: set a goal, say how you are going to accomplish the goal, report against the goals, say what you are doing, and discuss the problem that you had, and indicate how you are going to correct it. ... It has been very impressive to the board. The Western board now is saying: Victor turned out to be solid. I don’t think he was solid in the beginning. I think he has learned a lot over his two-year experience.354

Overseas Venture Capital and IPO

Sohu has heavily relied on overseas venture capital from the beginning. By the time it went public, the company had conducted three rounds of venture capital fundraising (Table 4.3.7).
Table 4.3.7 Sohu’s Fundraising (Pre-IPO)

<table>
<thead>
<tr>
<th>Date</th>
<th>Investors (Country or Region)</th>
<th>Amount (in US$ million)</th>
</tr>
</thead>
</table>
| November 1996 | Edward Roberts (MIT professor, USA)  
                               Brant Binder (MIT student, USA)  
                               Negroponte (MIT professor, USA) | 0.225                   |
| March 1998 | Intel Corporation (USA)  
                               Dow Jones (USA)  
                               Harrison Investment Properties (USA)  
                               Morningside Technologies, Inc. (Hong Kong)  
                               International Data Group (USA) | 2.15                    |
| January 2000 | Pacific Century Cyberworks Ltd. (Hong Kong)  
                               Legend Holdings Ltd. (China)  
                               Hikari Tsushin Inc. (Japan) | 22.0                    |

Total: 24.375

Source: Company data and news information

Sohu was the first Chinese Internet company to establish itself on overseas capital. In October 1996, MIT professor Roberts offered Zhang an investment of 75,000 at ITC’s market value of US$1 million. At the same time, an MIT Sloan MBA student named Brant Binder also agreed to invest US$75,000. Later, another MIT professor, Negroponte also promised Zhang a similar investment. By November of 1996, Zhang had received seed money of US$225,000.

However, this seed money did not last long. By 1998, when the company finally established its business model as a portal site, ITC was facing a financial crisis. In September 1997, Zhang and Roberts already began to target institutional investors in the US and had made

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some progress with potential investors such as Intel, SoftBank, and China.com. It was a long process. In December 1997, Zhang had to ask his original investors for help because the company had trouble in disbursing salaries. The three individuals agreed to lend Zhang US$100,000. "It was the toughest time for Sohu," Zhang recalled. At the beginning of 1998, the situation began to improve. In March, Zhang received US$2,150,000 from Intel Corporation, Dow Jones, Harrison Investment Properties, Morningside Group, and International Data Group. However, compared to its rival, Sina, Sohu had received much less venture capital. By now, Sina had already obtained US$ 92.5 million from venture capitalists—almost 10 times that of Sohu. By January 2000, Sohu had completed its third round of fundraising, receiving US$22 million from Pacific Century Cyber Works (PCCW), Legend, and Hikari Tsushin (See Table 4.3.6.).

Sohu was also the first China-based (excluding Hong Kong) Internet portal to prepare an overseas IPO. On February 4, 2000, Sohu filed with the SEC to list on Nasdaq, announcing that it intended to issue up to US$86.3 million of common stock at its IPO. The company had to go through tough negotiations with the Chinese government, which prohibited foreign-owned companies from owning or operating telecommunications-related businesses in China. Thus, as a U.S. registered corporation, ITC was not allowed to have legaliz operation of Internet content business. Consequently, as a wholly owned Chinese subsidiary, Sohu (or ITC Beijing) could not obtain an ICP (Internet Content Provider) license under the government regulation. Like the other two Internet startups studied here, Sohu was forced to separate its mainland online content services from the rest of its business by establishing a Chinese

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356 See Session 4.2. for details.
company—Beijing Sohu Online Network Information Services Ltd. (or Beijing Sohu). By doing so, as a Chinese company, Beijing Sohu was able to conduct Internet content/information-related businesses. In an arrangement similar to Sina’s, two local executive members, Zhang and He Jinmei, “owned” 80% and 20%, respectively, of Beijing Sohu. At any time, ITC Beijing can purchase the ownership in Beijing Sohu from the two local shareholders for $242 as of March 31, 2000.\textsuperscript{358} Under this arrangement, Beijing Sohu was able to provide online content services while Beijing ITC operated online advertisement businesses and online directory and search engine services. (See Figure 4.3.1)

\textsuperscript{357} SEC filing, April 4, 2000.
\textsuperscript{358} Prospectus F24.
Under this arrangement, the foreign-listed company would not own any equity in the Chinese-based company. Sohu finally received permission and went public on Nasdaq on July 10, 2000, through the underwriter Credit Suisse First Boston. In the IPO, Sohu offered 2,300,000 shares of the company's common stock, priced at US$13 per share. The market capitalization was US$54.9 million. The biggest shareholder was Zhang (28.3%), followed by Maxtech, a subsidiary of the American investment firm Morningside (20.7%), and then Intel (10.5%) and Dow Jones. By now, the big three Chinese portals were all listed on Nasdaq (see Table 4.3.5).

By the time it went public, Sohu had developed into one of the most influential Internet portal sites in China, and was the best-known Chinese-language directory and search engine. Its
online directory contained over 270,000 Chinese Web site listings\footnote{This is the number as of May 31, 2000. See Prospectus.} and its websites now provided 12 content channels covering news, sports, business, and other topics. It also developed a platform for e-commerce services. Gradually, Sohu added and improved services such as chat rooms, free email, and virtual community. In April 2000, Sohu, together with other portals, pioneered mobile Internet in China through an alliance with Nokia China, China Mobile Communications Corporation, and China Unicom. Soon it began to provide the content for the Wireless Application Protocol (WAP) services to nine provinces, a geographic area encompassing nearly half of the mobile phone users in China. By late June 2000, Sohu had made mobile web services available to about half of the mobile phone subscribers in the country.\footnote{Sohu data.}

Like many other Nasdaq-listed high-tech companies, and especially those that were Internet-related, Sohu’s stock performance was not good. The company faced a possible delisting since the stock price plunged and stayed below US$1 for nearly a month.\footnote{If a company's stock price on Nasdaq falls below US$1 for 30 consecutive trading days, it will be given 90 calendar days to raise the price above US$1 for 10 consecutive trading days. Otherwise the company will be delisted from Nasdaq. In March 2001, Sohu’s stock price fell below US$1, and faced possible delistment for nearly a month. However, the stock price rebounded above US$1 on April 13, allowing the company to avoid being delisted.} Nevertheless, this threat did not prevent the company from moving forward. After its IPO, one of the biggest moves was to acquire ChinaRen a leading web destination for youth in China, in September 2000.\footnote{This acquisition turned Sohu into the largest Internet portal in Mainland China in terms of page views. Through this acquisition, Sohu improved its technical capabilities and expanded to more than five hundred people (See Table 4.3.8) In the same year, Sohu was}
ranked top in the surveys of Iamasia, the Internet measurement company for the Asia-Pacific region. In April 2001, Sohu maintained its top position in Iamasia’s Mainland China audience measurement survey.\textsuperscript{363} Forbes magazine listed Sohu as one of the “300 Best Small Companies of 2001.”\textsuperscript{364}

With a registered user base of 7.8 million and over 44 million average daily page views, Sohu became the biggest Internet portal in China. Entering 2001, in addition to developing its online advertising business, Sohu began to diversify its revenue sources by hosting online road shows for domestic and foreign businesses, handling insurance service on its Website with Taikang Insurance Corporation, promoting short message service (SMS) with China Mobile, and offering e-process technology solutions with the American software company TIBCO. As a result, in the first quarter of 2001, its online advertising income of US$2.1 million represented 85% of its total revenues, compared to 95% in the previous quarter. The company’s non-advertising revenues increased from US$109,000 to US$366,000, or from 5% to 15% of total revenues (see Table 4.3.9). Subsequently, in the second quarter of 2001, non-advertising income reached 23% of total revenues. Overall, in the second quarter of 2001, total revenues were US$2.9 million, representing a year-to-year increase of 115%. Sohu began to catch up with its major competitors—Sina and Netease, as they faced a series of challenges involving management and accounting turmoil. In 2001, for the fourth consecutive month, Sohu was ranked as the top China Web Property by Iamasia’s Mainland China Audience Measurement Survey.

\textsuperscript{362} ChinaRen, Inc., which was incorporated in California, was one of the major Chinese Internet portals. The company was founded in 1999 by three Stanford graduates: Joseph Chen (陈一舟), Yunfan Zhou (周云帆), and Nick Yang (杨宁).

\textsuperscript{363} IAMAIA is a Hong-Kong based Internet measurement company. See PR Newswire, April 19, 2000.
### Table 4.3.8 Numbers of Employees at Sohu

<table>
<thead>
<tr>
<th>Year</th>
<th>96/12</th>
<th>97/12</th>
<th>98/12</th>
<th>99/12</th>
<th>00/10</th>
<th>00/12</th>
<th>01/12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees</td>
<td>2</td>
<td>18</td>
<td>80</td>
<td>150</td>
<td>300</td>
<td>524</td>
<td>450</td>
</tr>
</tbody>
</table>

*Source: Sohu*

### Table 4.3.9 Sohu's Revenues and Losses (in US$ millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue</th>
<th>Net Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>0.078</td>
<td>0.16</td>
</tr>
<tr>
<td>1998</td>
<td>0.472(505%)</td>
<td>0.615</td>
</tr>
<tr>
<td>1999</td>
<td>1.617 (243%)</td>
<td>3.449</td>
</tr>
<tr>
<td>1Q 1999</td>
<td>0.233</td>
<td></td>
</tr>
<tr>
<td>2Q 1999</td>
<td>0.434</td>
<td>0.5</td>
</tr>
<tr>
<td>3Q 1999</td>
<td>0.401</td>
<td></td>
</tr>
<tr>
<td>4Q 1999</td>
<td>0.549</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>5.953</td>
<td></td>
</tr>
<tr>
<td>1Q 2000</td>
<td>0.842 (%)</td>
<td>2.536</td>
</tr>
<tr>
<td>- Online advertising</td>
<td>0.842</td>
<td></td>
</tr>
<tr>
<td>- Others</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>2Q 2000</td>
<td>1.33</td>
<td>6.5</td>
</tr>
<tr>
<td>3Q 2000</td>
<td>1.602</td>
<td>4.3</td>
</tr>
<tr>
<td>4Q 2000</td>
<td>2.179</td>
<td>-0.8268</td>
</tr>
<tr>
<td>- Online advertising</td>
<td>2.07</td>
<td></td>
</tr>
<tr>
<td>- Others</td>
<td>0.109</td>
<td></td>
</tr>
<tr>
<td>1Q 2001</td>
<td>2.453</td>
<td>-0.8466</td>
</tr>
<tr>
<td>- Online advertising</td>
<td>2.087</td>
<td></td>
</tr>
<tr>
<td>- Non-advertising</td>
<td>0.366</td>
<td></td>
</tr>
<tr>
<td>2Q 2001</td>
<td>2.9</td>
<td>0.944 (22%)</td>
</tr>
</tbody>
</table>

*Source: Prospectus, Financial Reports*

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4.4 Netease.com

Established in May 1997, Netease has grown from a three-person startup to one of the China’s leading Internet companies. Netease independently developed many Internet software packages, such as the Chinese-language all-text search engine, the virtual community system, and the Chinese-English email system. The company was also among the first to initiate functions such as Chinese search engine services, customized sites, personal homepage hosting, free email system, interactive online community, female-focused channels, and online auctions. Netease was named the most popular Chinese website by CNNIC in 1998 (see Table 4.1.5); and, for the third consecutive month, Netease topped China’s domain names in the Iamsia’s survey in December 2000 (see Table 4.4.1). On June 30, 2000, Netease went public on Nasdaq. By March 2001, Netease had 18 content channels, 9,000 online discussion groups, and 739,000 personal pages (see Table 4.4.2).

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365 This case is based on personal interviews, company data, and second-hand materials, such as Liu Ren: “Qingchun Gushi” (Story of Youth), China ComputerWorld, February 18, 2000.
367 Iamsia stands for Interactive Audience Measurement Asia, Ltd., a Hong Kong-based Internet research firm. Iamsia’s survey collected data from a panel of 5,500 home Internet users in 18 cites across China. The data were then weighted and projected for China’s entire home Internet-user population.
368 Netease data.
Table 4.4.1 The Most Popular Web Sites in China (as of September 2000)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Web Site</th>
<th>Reach*</th>
<th>Unique Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>163.com</td>
<td>50.7%</td>
<td>3,406,000</td>
</tr>
<tr>
<td>2</td>
<td>sina.com.cn</td>
<td>43.2%</td>
<td>2,904,000</td>
</tr>
<tr>
<td>3</td>
<td>sohu.com</td>
<td>42.3%</td>
<td>2,840,000</td>
</tr>
<tr>
<td>4</td>
<td>yeah.com</td>
<td>27.2%</td>
<td>1,828,000</td>
</tr>
<tr>
<td>5</td>
<td>chinaren.com</td>
<td>25.1%</td>
<td>1,687,000</td>
</tr>
<tr>
<td>6</td>
<td>yahoo.com</td>
<td>23.6%</td>
<td>1,586,000</td>
</tr>
<tr>
<td>7</td>
<td>163.net</td>
<td>22.3%</td>
<td>1,499,000</td>
</tr>
<tr>
<td>8</td>
<td>china.com</td>
<td>20.9%</td>
<td>1,404,000</td>
</tr>
<tr>
<td>9</td>
<td>263.com</td>
<td>20.7%</td>
<td>1,388,000</td>
</tr>
<tr>
<td>10</td>
<td>Microsoft.com</td>
<td>18.1%</td>
<td>1,218,000</td>
</tr>
</tbody>
</table>

* "Reach" refers to the percentage of total home users that access the Web site
Source: Iamasia

Table 4.4.2 Average Daily Page Views and Other Statistics (in millions)

<table>
<thead>
<tr>
<th></th>
<th>12/99</th>
<th>03/00</th>
<th>05/00</th>
<th>06/00</th>
<th>09/00</th>
<th>12/00</th>
<th>03/01</th>
<th>05/01</th>
<th>09/01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Daily Page Views</td>
<td>--*</td>
<td>14</td>
<td>20</td>
<td>24</td>
<td>50</td>
<td>70</td>
<td>--</td>
<td>121.3</td>
<td>--</td>
</tr>
<tr>
<td>Registered Users</td>
<td>2.23</td>
<td>3.2</td>
<td>4.9</td>
<td>5.9</td>
<td>9.26</td>
<td>13.81</td>
<td>--</td>
<td>21.5</td>
<td>33.4</td>
</tr>
<tr>
<td>Online</td>
<td>0.007</td>
<td>0.013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>Discussion Group</td>
<td>--</td>
<td>3</td>
<td>7</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.09</td>
<td>--</td>
</tr>
<tr>
<td>Personal Homepages</td>
<td>--</td>
<td>0.18</td>
<td>0.378</td>
<td>0.465</td>
<td>--</td>
<td>--</td>
<td>0.739</td>
<td>0.826</td>
<td>--</td>
</tr>
<tr>
<td>Chat</td>
<td>--</td>
<td></td>
<td>--</td>
<td>0.034</td>
<td>--</td>
<td>--</td>
<td>0.045</td>
<td>0.045</td>
<td>--</td>
</tr>
<tr>
<td>Content Channels</td>
<td>--</td>
<td></td>
<td>--</td>
<td>15</td>
<td>--</td>
<td>16</td>
<td>18</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

* Not available
Source: Netease

4.4.1 Ding Lei and the Birth of Netease

Ding Lei, the founder of Netease, was ranked twentieth among China's wealthiest individuals by Forbes in November 2000. Unlike Wang Zhidong and Charles Zhang, Ding had neither a
big name before he started his Internet operation nor a glamorous overseas education. He started as a "net worm" with an ordinary background. Born in 1971 in Ningbo, in Zhejiang province, Ding was a radio technology enthusiast as a teenager and built his first radio receiver when he was in the seventh grade. In 1990, Ding Lei enrolled in the University of Electronic Science and Technology of China (UESTC) of Chengdu to study telecommunication technologies. At college, he expanded his interests to include computer software engineering. He recalled:

I loved to go to the library to read the newest issues of those computer-related magazines. From those U.S. publications, I began to learn about Compuserve, BBS, and so on. I was very curious about how the network worked, but I had no chance to really use it.\(^\text{369}\)

In addition to attending school, Ding also held a part-time job as a software engineer for a computer company. He began to learn about modems and computer networks. After graduating from college in 1993, Ding return to his hometown and worked at Ningbo Telecom, a local affiliate of China Telecom Corporation. There, Ding had a chance to expand his knowledge of computer operating systems from PC to UNIX. He also began to hear about the emerging Internet technology and its applications. In 1993, he had his first experience with the Wide Area Network (WAN) through accessing Huotui (火腿), a dial-up Bulletin Board System (BBS). Fascinated by the technology, Ding immediately tried to establish his own BBS with some help from a friend. But it was not until 1995 that he had the chance to surf the Internet for the first

\(^{369}\) Personal interview with Ding Lei, July 12, 1999.
time. He was looking for some data for a particular product that he could not find in
the library. He borrowed an Internet account from a friend who worked at the Chinese
Academy of Science and Technology and easily found what he needed. He also
visited several other websites, including yahoo.com. That same year, when Beijing
Telecom Administration launched the first ISP service in China, Ding became one of
the first 100 registered Internet users. 370

Although he enjoyed a decent compensation package from Ningbo Telecom, Ding began to
feel unsatisfied with his work because he did not see any room for further career development.
In 1996, seeking other opportunities, he left his hometown for Guangzhou to take a new job at
the China branch of Sybase, a California-based database solution provider. Although working
at Sybase gave him the chance to learn about the Internet and various types of development
tools (such as those based on Linux), he found his job testing database software to be less
than challenging. In May 1996, he left Sybase for Feijie Internet Service Corp. Ltd. (飞捷;
www.fjnet.com.cn), a newly established, Guangzhou-based ISP. During his stay at Feijie,
Ding set up the “Feijie BBS” based on the FireBird system, an online database tool run on the
UNIX platform, through the ChinaNet backbone network. Through this experience with Feijie,
Ding became conscious of the fact that it was very difficult for a small private firm to
compete in the ISP market, which was dominated by China Telecom and its near monopoly.
Soon, Ding decided that Feijie could not meet his ambitions and began to think about starting

370 On June 20, 1996, Beijing Telecom Administration began to offer ISP services on the ChinaNet Backbone
Network.
his own Internet company. "I wanted to do what I wanted. But it seemed that in all of Guangzhou there was no company that could offer me this opportunity."

4.4.2 Product and Service Development: From A Software Provider to A Popular Portal Site

To gain better network access for his projected startup, Ding decided to seek support from Guangzhou Telecom, local branch of China Telecom, which had a direct connection to the ChinaNet backbone network. Ding submitted a proposal titled "Attracting Visitors to ChinaNet through Enriching Online Services" to Zhang Jingjun (张静君), the head of Guangzhou Telecom. Since there was little information available on ChinaNet at the time, most Chinese users merely used the network as a bridge to foreign websites. Ding claimed that he could attract visitors to the ChinaNet network by offering applications such as online search engines and BBS. His proposal was so convincing that Zhang immediately granted Ding and his friends free direct connection to the ChinaNet backbone network, and even provided, free of charge, a server, office space, and some facilities.

On May 4, 1997, Ding launched the “Netease BBS” on the ChinaNet Backbone network. Because of Ding’s popularity, many former Feijing BBS users switched to Netease; and within three months, the Netease BBS surpassed YiWangQingShen (一往情深，bbs.sztttp.net.cn.), a BBS that was built on ChinaNet in April 1996, to become the most popular BBS in China. Through the Netease BBS, Ding Lei also made many “net friends,” including Chen Leihua (陈磊华), who later became an important contributor to the young startup.

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371 Personal interview with Ding Lei, July 12, 2000.
On May 27, 1997, at the age of 26, Ding registered Guangzhou Netease Computer System Ltd. The company had three employees, averaging 22 years of age. Ding’s personal savings and personal loan comprised the seed money of RMB ¥ 500,000 (about US$60,000). The company’s name had a strong Chinese flavor, of which Ding was proud:

The name “Netease” not only means “easy to access the Internet” in Chinese, but it also a key concept from the I Ching.372 ... At the time, I had no ambition more than developing user-friendly, tailored software packages for Chinese Internet users. I believed that Chinese could come up with good Internet applications.373

Before he registered the company, Ding and his friends had already begun to develop “Yeah,” a Chinese-language full-text search engine. This was completed several months later and debuted when Netease launched its search site, www.yeah.net. However, “Yeah” (as the SRS search engine, which launched a year earlier374) did not receive sufficient attention from early Internet users in China because of the limited Chinese-language content available at the time.375 It was not until later that it finally gained some recognition, when “Yeah” was elected one of the top ten “most recommended website by Internet users” in CNNIC’s survey in January 1999.

As a result, the Web server set up at Guangzhou Telecom was used only for a BBS and a search site. In July 1997, to utilize fully the resource of the server with 18-gigabyte hard disk

372 “Yi (易),” as an important concept in Taoism, means endless, broad, deep, and change.
373 Personal interview with Ding Lei, July 20, 1999.
374 See 4.2.2 for details.
375 A year-and-a-half later, in October 1997, the number of China based websites reached 1,500. See Table 4.1.6.
space (a true giant at the time), Netease began to offer free personal homepage hosting services using a system Ding had written. He said:

Linux affected me a lot … I thought that we had plenty of extra space on our hard disk drive, so I came up with the idea of free homepage hosting. I guess such free services could let people know about Netease.  

The first month saw only about a hundred users register for homepage hosting services. This was mainly because homepage users were not confident about settling down at a small, unknown company like Netease, and also because not many people in China knew how to set up a personal homepage. Ding began to search online for people who already had personal homepages and sent out emails inviting them to take advantage of the free 20 megabytes of homepage space offered by Netease. Ding also advertised aggressively on the five major Chinese websites, including Capital Online and IHW, promoting his free homepage service. “Online advertising” was very rare at the time, and these websites did not know how much to charge, so Ding got good deals: RMB¥800 (less than US$100) per month per piece of online advertising. Two months later, Netease hosted 10,000 homepages. In July 1998, the number increased to 20,000.  

Apparently, users who wanted to build their personal homepages were capable Internet surfers. Through homepage hosting, Netease obtained a valuable asset: the most active and loyal group of Chinese Internet users.

Netease’s BBS and its search engine were the company’s core services, but neither brought it any income. Netease needed money to survive, but when Ding first heard about Hotmail in

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376 Personal interview with Ding Lei, July 12, 2000.
377 Netease data.
1997, he decided to pursue offering free email service. According to Forrester Research, only 2% of the population in the U. S. used email in 1992. Five years later, the number of email users had grown to 15% of the population. Ding foresaw in the near future a rise in free email users in China as well. He borrowed some money from friends, contacted Hotmail, and offered US$100,000 to buy its online free email system. Hotmail wanted $2.8 million, plus an installation fee of US$2,000 per hour. Unable to afford this amount, Ding decided to work on developing a Chinese-English email system in-house. Ding and his friend and partner, Chen Liehua, a junior at the Southern China University of Technology, began work on their project.

Meanwhile, Ding was trying to come up with a domain name for his projected free email system. English domain names had been one of the hurdles for Chinese Internet use because of the difficulty Chinese people had in understanding and remembering them. One day, Ding had a great idea: use numbers that Chinese users could memorize easily. There are many numbers with which Chinese users were very familiar. For example, 163 and 169 were numbers for Internet connection through the Beijing Telecom Administration, and Chinese Internet users had to use them everyday. Further, Ding believed that Chinese people would love to use numbers presenting good luck and fortune. Excited about his clever idea, Ding immediately registered a number of domain names: 163.com, 163.net, 188.net, 188.com, 166.com, and 166.net. Since then, the use of numbers for domain names has been well received by the Chinese Internet community. For example, 8848.com was the name of the first Chinese business-to-consumer portal.

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378 Chinese people consider 8 as “fortune” and 6 as “luck.”
379 It also became popular to use as domain names numbers pronounced in a way similar to Chinese words. For example, 51Job, a well-known job hunting website, uses “51” as a substitute for “I want,” since 51 in Chinese is pronounced similarly to “I want” in Chinese.
In November 1997, Ding and his colleagues completed the Chinese-English-language email system. However, the Guangzhou Telecommunication Administration did not grant Netease a license to carry the service independently, and the company had no money to invest on hardware; the young startup had earned nothing since its establishment. Ding was now forced to search for a partnership with a telecom company.

Although Ding insisted that his was a promising online service model, nobody showed interest; a product that had little guarantee of bringing immediate profit was a hard sell. Given that companies affiliated with China Telecom had always enjoyed the benefit brought by their near monopoly positions, it was unsurprising that did not want to respond to this free email service. Finally, Guangzhou Feihua (www.gznet.com), a company under the supervision of Guangzhou Telecom, decided to purchase Ding’s email system at RMB ¥250,000. Ding also offered Guangzhou Telecom the domain name he had registered: www.163.net. On February 16, 1998, China’s first email service site, www.163.net, was launched, and was welcomed immediately by net users. Each day brought about 2,000 new registered users. Meanwhile, a costly buyout by Microsoft made Hotmail a bigger name in global Internet sectors. Soon, the well-known state-owned ISP, Beijing Capital Online (www.263.com), also purchased the Netease system at US$ 100,000. Both 163.net and 263.com later became the most popular email service sites among China’s Internet users (see Table 4.4.3).

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380 Established in 1995 by Guangzhou Telecom, Guangzhou Feihua initially focused on providing telecom-related services.
381 Hotmail and Microsoft struck a $0.3 billion buyout deal in December 1997.
382 In 2000, the Hong Kong-based Tom.com purchased 163.com for RMB ¥50 million.
Table 4.4.3 Registered User numbers of Netease’s Free Email System at 163.net

<table>
<thead>
<tr>
<th>Year</th>
<th>02/16/98</th>
<th>10/98</th>
<th>06/12/99</th>
<th>10/07/99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users</td>
<td>0*</td>
<td>300,000</td>
<td>1,000,000</td>
<td>15,000,000</td>
</tr>
</tbody>
</table>

*163.net was launched on February 16, 1998
Source: Liu & Li (2000)

Several months later, many other Chinese-language websites, such as China.com, 990.net (Shanghai), 188.net (Nanjing), yinmail.com (Yunan Province), and 371.com (Shangdong Province), approached Netease for its email system. Ultimately, the email system earned RMB ¥5 million for Netease. By 1999, approximately 50% of China’s net users used the free e-mail accounts supported by the Netease system. In July 1998, when government regulations allowed the company to have its own email operation, Netease launched its free email service site, www.163.com. In a 1998b CNNIC survey, five of the top 11 websites (www.neatease.com, www.163.net, www.263.net, www.ycah.net, and www.188.net) were equipped with Netease’s email system. The company has enjoyed a great reputation as a provider of reliable email systems. By November 2001, the registered user number of Netease email site, www.163.com, reached 29 million.

The young startup soon became popular among Internet users because of its technical reliability. To keep visitors at Netease’s Web destinations, Ding introduced the “virtual community” service, which had never existed in China. Ding and his developers then spent almost an entire year writing a system for this virtual community. In December 1998, the company launched its online interactive community services, providing Internet users with a place to live their virtual lives. The virtual community provided services such as chat room, games, photo albums, message boards and so on. Within 12 days, it had attracted 450,000
registered users. Netease even developed its virtual law system for community members to follow. As of May 31, 2000, Netease had more than 1.2 million registered community members and approximately 20,000 new postings per day.

At that time, Beijing, the location for most Chinese Internet pioneer companies, was seen as the center of China’s Internet development—yet, this Guangzhou-based startup created its brand name despite of its geographical disadvantage. In July 1998, the company was ranked second in CNNIC’s first semiannual survey on China’s Internet Development (see Table 4.1.5). Ding was surprised by his company’s popularity among net users, since he still saw his company as primarily being a software developer.

In June 1998, Ding had a chance to chat with the founder of an overseas Internet portal and learned that this portal site earned about US$250,000 each month from online advertising. Ding began to realize the big potential of a portal site. Sohu was already aggressively advocating a portal site model, followed closely by Sina, which was reinventing itself as a portal. Following this trend, Netease changed its homepage in September 1998 from www.netease.net to www.netwase.com, transforming itself from a software developer and service provider to an Internet portal site. “The page views of the homepage immediately increased from 80,000 to 100,000,” recalled Li Zhibing, a former manager at Netease.

By now, the “big three portals” had emerged in the Chinese Internet market and implemented various business models (See Table 4.4.4). Ding’s partner Chen Leihua commented:

---

383 Netease data.
384 In May 1998, Netease purchased the domain name of www.netease.com for US$50,000.
385 Journalist interview with Li Zhibing. See “Ding Lei he 163 de Yuanyuan” (丁磊和 163 的渊源 Ding Lei and 163), Southern Weekend, October 21, 2000.
As a programmer, I thought that I would not be able to contribute as much as I had done in [Netease's] early days. However, this portal model suited Ding Lei well. From the founding day of the company, he was no longer an engineer ... Ding is very good at business. He has vision. In the very early days, he already foresaw that selling services would be much more promising than selling technologies ... Netease has followed what Ding had envisioned.  

---

386 Personal interview with Chen Leihua. August 20, 2000.
<table>
<thead>
<tr>
<th>Year</th>
<th>Sina</th>
<th>Sohu</th>
<th>Netease</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>Richwin for Internet (96/04)</td>
<td>Web page design (96/11)</td>
<td>Search engine (97/04)</td>
</tr>
<tr>
<td></td>
<td>BBS (96/04)</td>
<td></td>
<td>Homepage hosting (97/07)</td>
</tr>
<tr>
<td></td>
<td>Online chat (96/04)</td>
<td></td>
<td>Free electronic card (97/12)</td>
</tr>
<tr>
<td></td>
<td>Search engine (96/07)</td>
<td></td>
<td>Free email system (97/12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Online chat</td>
</tr>
<tr>
<td>1997</td>
<td>Web page design (97/04)</td>
<td>ITC Compass directory service (97/08)</td>
<td>Changed to a “portal site” (98/10)</td>
</tr>
<tr>
<td></td>
<td>Sports news channel (97/11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Online games (98/08)</td>
<td>Search engine (98/02)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>News channels (98/09)</td>
<td>Online Chat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Travel services (98/12)</td>
<td>Free email</td>
<td>Free email services (98/07)</td>
</tr>
<tr>
<td>1998</td>
<td>Changed to a “portal site” (98/10)</td>
<td>Changed to a “portal site” (98/02)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electronic greeting card (98/12)</td>
<td></td>
<td>Virtual community (98/12)</td>
</tr>
<tr>
<td></td>
<td>Search engine—SinaSearch (99/02)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>VIP Chat (99/03)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anti virus services (99/07)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Finance channel (99/08)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Downloading center (99/08)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td>Electronic map services (99/09)</td>
<td>Content Channels (99/03)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Local news channels (99/09)</td>
<td>e-Commerce (Online auction) (99/09)</td>
<td>e-Commerce (Online auction) (99/07)</td>
</tr>
<tr>
<td></td>
<td>Hotel reservation services (99/09)</td>
<td>e-Commerce (online auction) (99/09)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Online shopping mall (99/11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Education channel (99/12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>50K Free email (99/12)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Various*
Table 4.4.4 Business Development at Sina, Sohu, and Netease (Continued)

<table>
<thead>
<tr>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online shopping mall (00/01)</td>
<td>Online auditions (00/02)</td>
<td>WAP mobile Internet content (00/03)</td>
<td>WAP mobile Internet content (00/03)</td>
<td>Netease iPDA (00/05)</td>
</tr>
<tr>
<td>WAP mobile Internet content (00/11)</td>
<td>WAP mobile Internet content (00/03)</td>
<td>Real state services (00/04)</td>
<td>Netease iPDA (00/05)</td>
<td>Online shopping mall (00/07)</td>
</tr>
<tr>
<td>College entrance exam site (00/05)</td>
<td>College entrance exam site (00/05)</td>
<td>Job hunting services (00/07)</td>
<td>Online shopping mall (00/07)</td>
<td>Online banking (00/08)</td>
</tr>
<tr>
<td>Real estate site (00/09)</td>
<td>Job hunting services (00/07)</td>
<td>Instant messenger services (SOQ) (00/07)</td>
<td>Online banking (00/08)</td>
<td>Online education (00/12)</td>
</tr>
<tr>
<td>Online laundry services (00/09)</td>
<td>Travel services (00/07)</td>
<td>Health site (00/09)</td>
<td>Online education (00/12)</td>
<td>College entrance exam site (00/07)</td>
</tr>
<tr>
<td>Online recruiting services (00/09)</td>
<td>Long-distance education (01/06)</td>
<td>e-Marketing</td>
<td>Travel services (01/02)</td>
<td>Music software: P2P (01/03)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yellow page services</td>
<td>Online stock trading services (01/04)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sohu shopping mall (01/11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fee-based services</td>
<td>Short massage for mobile phones (01/01)</td>
<td>Fee-based services</td>
<td>Email services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Online map services (01/01)</td>
<td></td>
<td>Online Games</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Domain registration services (01/10)</td>
<td></td>
<td>Online dating</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Personal homepage hosting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Short message for mobile phones</td>
</tr>
</tbody>
</table>

Source: Various sources

In January 1999, Netease again ranked first in CNNIC’s survey. That April, Netease moved its headquarters to Beijing, the location for many other Chinese Internet pioneer companies, including IHW, Sohu, Sina, and Chinabyte. “Although there were many foreign companies located in the south, there were not many Internet companies. In Beijing, I could find many people who were also interested in Internet,” Ding said. In the first month after the move, the company expanded to 40 people (see Table 4.4.5).
Table 4.4.5 Netease's Expansion

<table>
<thead>
<tr>
<th>Year</th>
<th>97/05</th>
<th>98/06</th>
<th>99/01</th>
<th>99/04</th>
<th>99/07</th>
<th>00/03</th>
<th>00/06</th>
<th>01/06</th>
<th>01/11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Employees</td>
<td>3</td>
<td>8</td>
<td>12</td>
<td>40</td>
<td>60</td>
<td>160</td>
<td>240</td>
<td>360</td>
<td>330</td>
</tr>
</tbody>
</table>

*Source: Netease*

Following Sohu and Sina, Netease began to concentrate on building content channels and, by May 2000, the company had established content distribution relationships with up to 140 overseas and domestic Chinese-language content providers.\(^{387}\) By 2000, the company's sales revenues reached US$3.6 million. (see Table 4.4.6).

Table 4.4.6 Netease's Financial Results (for the year ended December 31)

<table>
<thead>
<tr>
<th>Year</th>
<th>1997 (RMB ¥)</th>
<th>1998 (RMB ¥)</th>
<th>1999 (RMB)</th>
<th>2000 (RMB ¥)</th>
<th>2000 (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Revenues</td>
<td>100,000</td>
<td>3,115,432</td>
<td>16,771,006</td>
<td>32,973,661</td>
<td>3,983,576</td>
</tr>
<tr>
<td>- Advertising Services</td>
<td>--</td>
<td>172,850</td>
<td>10,796,074</td>
<td>1,303,953</td>
<td>30,067,477</td>
</tr>
<tr>
<td>- Software Licensing and Related Integration Projects</td>
<td>100,000</td>
<td>2,942,582</td>
<td>3,515,831</td>
<td>424,643</td>
<td>450,350</td>
</tr>
<tr>
<td>- E-commerce Related Services</td>
<td>--</td>
<td>--</td>
<td>2,459,101</td>
<td>297,011</td>
<td>2,455,834</td>
</tr>
<tr>
<td>Net Loss</td>
<td>(7,058)</td>
<td>(332,737)</td>
<td>(51,974,253)</td>
<td>(6,277,462)</td>
<td>(169,268,799)</td>
</tr>
</tbody>
</table>

*Source: Prospectus, Financial Reports*

\(^{387}\) Prospectus.
In addition to developing the first Chinese-English-language email system and the first online community, Netease was the first to put into practice many other Internet applications in China (see Table 4.4.6.). For example, in July 1999, Netease conducted an online auction of Great Wall brand PCs, which was the first such auction in China. In August 1999, Netease launched the first personalized web page service in China. That October, Netease opened the first content channel dedicated to women users. In March 2000, through an alliance with Siemens, Motorola, CMG, and Ericsson, Netease designed the wap.163.com web site, which was accessible from mobile phones. As Ding said:

I am proud that I have witnessed the Chinese Internet sector from its birth and participated in its construction. I also have a deep understanding of the global Internet development. Most importantly, I know China’s situation very well. I can always sharply sense the direction for Netease’s development.  

4.4.3 Management Team, Overseas Venture Capital, and IPO

Management Team

Like many of his fellow Chinese entrepreneurs, Ding had no prior management experience. In fact, his management team lacked anyone with managerial until 1999, when Ding invited his brother, Ding Bo (丁波), who held an MBA degree from a Chinese university, to join the company.  Instead of putting in management time, Ding Lei spent many hours studying

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388 Personal interview with Ding Lei, December 18, 2001.
389 Ding Bo’s involvement, however, created the perception that Netease was managed as a “family business,” which does not match well with China’s Internet community’s image of being young, open-minded, and modern.
technologies. As he said, "no matter how busy I am, I study until 2o’clock in the morning each day."

Despite being an excellent engineer and a visionary, Ding began to face many managerial difficulties as the company quickly expanded. Unlike Sina and Sohu, Netease had been unable to build a stable middle management team. "I desperately needed capable managers," said Ding, expressing his concern over the company’s managerial capabilities once it had consecutively earned the top position in CNNIC’s Internet survey and achieved much higher name recognition in 1999. However, it was hard for Ding to find and keep capable people. "Within six months [after the move to Beijing], [Netease] hired in total 130 people; but perhaps only 80% would stay," explained Ding, emphasizing:

It was hard to find capable people. When it came to hiring technicians, it was fine if we did not hire super-talented ones, since I had strength in technology. However, management was critical and we had a hard time finding good middle managers.

Ding did not allow his managers autonomy. He often intervened in their work by challenging their supervision. Huang Zhimin (黄志敏), who built Netease’s Beijing headquarters from scratch, helped Ding transfer the company from a local startup to a well-known national company. Huang was in charge of overall website development. However, Ding liked to inspect content editors’ work and make immediate judgments without informing Huang in

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390 Personal interview with Ding Lei, July 12, 2000.
391 Ding interview, ibid.
392 Ding interview, ibid.
393 Ding interview, ibid.
advance. When Huang asked Ding to let him deal with issues under his authority, Ding told him: “I am teaching you how to manage your staff.” Ding insisted:

If Huang did not see the mistakes that people under his supervision made, of course I had to go ahead and ring a bell. I needed speed. Speedy problem-solving processes were the most important things to us.\(^{394}\)

When conflict arose between Ding and his middle managers, he tried to convince them by saying, “You guys have to take me as a team leader, rather than as a CEO.” Huang had a different view:

Well, it was impossible for [Ding] to take care of everything, although [Ding] is much more capable than I am. When we were in Guangzhou, it was very efficient to work as a team. However, we had only 12 people at the time. After we moved to Beijing, the company expanded to 130 people. You have to have a division of labor to efficiently manage … I felt really tired and upset because I spent too much time dealing with [Ding’s] work style.\(^{395}\)

In October 1999, Huang Zhimin decided to leave. Several other good technicians and managers also did not stay long. Che Liehua, an excellent programmer who contributed to Netease’s software product development, left the company in April 1999. Two more capable middle managers, Yang Hai (杨海) and Chen Jianfeng, both spent only a very short time at Netease.

\(^{394}\) Liu Ren, *ibid.*

\(^{395}\) Interview with Huang Zhimin by a journalist, See Liu & Li (2000).
Competition among local Internet portal sites became fiercer beginning in mid-1999. At the end of that year, Sina took the top position from Netease in the CNNIC survey; Netease fell to fifth. Netease’s management seemed unable to cope with the new challenges. Under pressure, Ding actively sought professional managers. In August 1999, Ding invited He Haiwen (何海文), who had five –years’ experience as an investment banker with Bear Stearns & Co. Inc., to join the company. In early 2000, with the help of headhunting companies, Netease hired additional managers with overseas backgrounds (see Table 4.4.7). On March 29, a new top management team was established. In addition to CFO He Haiwen, the company assigned a CEO, King F. Lai (黎景辉), who had an American education and entrepreneurial experience. Ding Lei and Jack Xu were appointed as co-CTOs. Xu also had U.S. degrees and working experience in the U.S. Internet sector. Although no longer the CEO, Ding remained as chairman. In June, Netease recruited Susan Chen, who had significant experience with overseas companies, as COO.
Table 4.4.7 A Top Management Team at Netease (as of June 2000)

<table>
<thead>
<tr>
<th>Name</th>
<th>Nationality</th>
<th>Position</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(Period of position)</td>
<td></td>
</tr>
<tr>
<td>Ding Lei</td>
<td>China</td>
<td>Chairman</td>
<td>Prior to Netease: Working experience in China’s telecommunication sectors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chief Executive Officer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(07/97 - 03/00)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Co-Chief Technology Officer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(03/00 - )</td>
<td></td>
</tr>
<tr>
<td>King F. Lai</td>
<td>USA</td>
<td>Director</td>
<td>Prior to joining Netease: Saatchi and Saatchi Advertising</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chief Executive Officer</td>
<td>Entrepreneurial experiences</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(03/00 - 06/00)</td>
<td></td>
</tr>
<tr>
<td>Haiwen He</td>
<td>China</td>
<td>Director</td>
<td>Prior to joining Netease: Bear, Sterns &amp; Co. Inc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chief Financial Officer</td>
<td>Master’s degree in Computer Science from the University of Arizona</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(08/99 - 06/00)</td>
<td></td>
</tr>
<tr>
<td>Jack L. Xu</td>
<td>China</td>
<td>Co-Chief Technology Officer</td>
<td>Prior to joining Netease: Excite@Home Corporation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(03/00 - )</td>
<td>PhD in Computer Science from the University of California at Berkeley</td>
</tr>
<tr>
<td>Susan Chen</td>
<td>Taiwan</td>
<td>Chief Operating Officer</td>
<td>Prior to joining Netease: FarEastTone</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(07/00 - 06/00)</td>
<td>Telecommunications Co. American Express (Taiwan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Johnson &amp; Johnson (Taiwan)</td>
</tr>
</tbody>
</table>

*Source: Netease*

Ding, however, did not get along with the international team. Soon after Netease’s IPO in June 2000, the international team was dismissed. CFO He Haiwen resigned in January.
2001.\textsuperscript{396} On June 12, 2000, Lai and Chen both left the company simultaneously. Ding Lei had to refill the CEO and COO positions. Ding commented,

I needed a core team. ...However, having eight or ten years' working experience in a prestigious company does not make a person a good manager ... I learned a big lesson.\textsuperscript{397}

Venture Capital and IPO

Unlike Sina and Sohu, NetEase was established with the founder's own money. Before 1999, Ding did not think it was necessary to introduce foreign investment, even though Sina and Sohu were already in their second or third rounds of fundraising. Ding thought his company could continue to generate positive revenue flow from its software products, mainly the Chinese-English email system. However, when NetEase was again ranked number one by CNNIC in January 1999, Ding began to realize the potential to expand the operation even further. After moving to Beijing, he actively sought out overseas financial support. However, few venture capitalists responded to the young entrepreneur. Ding recalled:

I was introduced to some well-known overseas venture capital companies. But they thought I was too young. With NetEase's expansion, the financial situation became worse day by day. I had to put my personal savings into the company continually. The situation did not improve until July 1997, when two friends of mine finally agreed to invest US$2 million ... Although we were top-ranked, overseas capitalists did not trust me since I had no overseas

\textsuperscript{396} He Haiwen stayed on as a board member and strategic advisor to the company. 
\textsuperscript{397} Personal Interview with Ding Lei, December 18, 2001.
education, the company did not have a professional management team, and our annual revenues were less than a million dollars … Besides, fundraising was a completely new thing to me … not having sufficient knowledge of dealing with venture capitalists also made the process tougher.\textsuperscript{398}

Finally in November 1999 and March 2000, Netease received US$5.5 million from its second- and third-round fundraising, which was provided by companies such as the News Corporation of Australia, SoftBank of Japan, ING Barings (United States), Goldman Sachs (United States), and Techpacific.com of Hong Kong.

On March 28, 2000, Netease filed with the U.S. Securities and Exchange Commission for an IPO on Nasdaq in May 2000. The previous July, Netease had registered Netease.com Inc. in the Cayman Islands as a foreign holding company to avoid uncertain regulations. This holding company was the sole owner of the Netease Information Technology (Beijing) Co., Ltd. (or Netease Beijing), founded in August 1999. It also acquired all of Guangzhou Netease’s assets. Ironically, this restructuring was the reason for China’s regulatory agencies rejecting Netease’s IPO request, since regulations prohibited foreign-invested entities from owning or operating telecommunications businesses and advertising businesses in China. To cope with this situation, Netease separated Guangzhou Netease, which was now 80% owned by Ding Lei, from Beijing Netease. While Guangzhou Netease had received approval from regulatory authorities to provide Internet content services, Beijing Huangyitong Advertising Co. Ltd., Guangzhou Netease’s 80% owned subsidiary, was created to carry on advertising business. Netease.com entered into a series of agreements with Guangzhou Netease and

\textsuperscript{398} Liu Ren, \textit{ibid}. 

265
Guangyitong Netease to ensure future ownership of those operations (see Figure 4.4.1). Similar to Sina and Sohu, Netease excluded its China-based assets from the listing vehicle, which was registered in the United States.

Netease went public on June 30, 2000. Merrill Lynch &Co. and Deutsche Alex Brown acted as lead underwriters on the offering, issuing 4.5 million shares at $15.5 per share (Nasdaq: NTES). At age 25, Ding, who owned 58.5% of the company’s equity (see Table 4.4.8), became one of the “richest people in China.”

<table>
<thead>
<tr>
<th>Shareholder</th>
<th>Shares Beneficially Owned Prior to IPO</th>
<th>%</th>
<th>Shares Beneficially Owned After IPO</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ding Lei</td>
<td>1,764,090,500</td>
<td>68.7</td>
<td>1,764,090,500</td>
<td>58.5</td>
</tr>
<tr>
<td>The News Corporation Ltd. (USA)</td>
<td>256,055,600</td>
<td>10.0</td>
<td>256,055,600</td>
<td>8.5</td>
</tr>
<tr>
<td>All Directors and Executive Officers As a Group of Nine Persons</td>
<td>1,845,228,000</td>
<td>71.5</td>
<td>1,859,055,000</td>
<td>61.1</td>
</tr>
</tbody>
</table>

*Source: Prospectus*

**Post-IPO Problems**

Netease was not spared when the Internet economy encountered difficulties worldwide. Its disappointihhhhng performance on the stock market forced Netease to contemplate alternatives. In the second quarter of 2001, the company began to have confidential
discussions with several parties, including Hong Kong-based i-Cable Communications Ltd., to explore possible buyout deals with Netease. The negotiations, though, were obstructed when an unexpected slip-up occurred.

In May 2001, Netease announced that there were incorrect figures in its financial report for the first quarter of 2001, stating that staff members did not have the right report on some contracts that had been signed between the company and the advertisers. This led to the first quarter financial report being delayed. A month later, Netease again found mistakes in its financial information, this time in its 2000 annual financial report. In a revised version of the financial report, Netease’s annual income of 2000 was changed from US$7.9 million to US$3.7 million. Net losses increased from US$17.3 million to US$20.4 million. This new information shocked the Chinese Internet community. Ding commented:
Figure 4.4.1 Netease's Corporate Structure

Source: Prospectus

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Equity interest, contracts
This happening, in fact, allowed us to see the way that foreign capital involvement pushed us [local companies] to improve our management. I do not deny that we had incorrect figures. But every piece of misinformation was revealed by Netease, not by a third party. I recall that when we found the misinformation on April 30 [2000], we soon reported it to the public through the media on May 8 [2000]. On June 1 [2001], when we announced some top management team members' reassignment, again we found and announced the possible unreliability of the 2000 annual financial report. We soon invited experts to carry out an audit and adjust the numbers. Having such transparency is not common for local firms.\(^{399}\)

However, the cost was enormous. CEO Lai and COO Chen were dismissed right after the first incident. i-Cable Communications withdrew its acquisition offer when the second flaw was found. Because of the incorrect figures, Netease could not furnish Nasdaq and the U.S. Securities and Exchange Commission with its 2000 Annual Report on Form 20-F on time. On July 19, 2001, Netease was notified that, because of its violation of Nasdaq Marketplace Rule 4310(c)(14), the exchange intended to delist the company’s American Depositary Shares from the Nasdaq National Market on July 27, 2001. On September 4, the company was suspended from Nasdaq. Imediately after this, Ding stepped down from the Chairman, CEO, and COO positions, and Geoffrey Wei resigned from his position as acting CFO.

\(^{399}\) Interview with Ding Lei by a journalist. See Wang Junguang (王军光): “Fang Tan: Wangyi Shangyang Jueidi Fanji; Ding Lei Xushi Fengyun Zaiqi (Interview: Ding Lei Fighting Back?)” Beijing Youth Daily, November 19, 2001.
Nevertheless, despite the Nasdaq delisting, management turmoil, and abortive buyout deals, Netease continues to develop its business. Trying to utilize its existing community resources to build revenue flow, Netease has added chargeable services such as online games, emails, online dating, online education, mobile phone short messages, and homepage hosting. Now Netease positions itself as a “leading Internet service provider.” The young Internet entrepreneur is trying to show confidence in what he is doing:

I still believe that China’s Internet sector is full of opportunities. Net users are increasing, and getting online is becoming much easier. More important, users began to take in various online services. Potential opportunities in China’s Internet sectors are huge.  

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400 On January 2, 2002, Netease resumed trading on Nasdaq.
401 See Wang Jinguang, *ibid.*
5. DISCUSSIONS AND CONCLUSIONS

Perhaps it was "irrational" for computer-related startups in China with scarce resources such as financial and human capital to enter or stay in PC manufacturing in the late 1980s and early 1990s, because the giant multinationals such as IBM, Compaq, and Hewlett-Packard dominated the market and demand was extremely low. A decade later, Chinese Internet pioneers, with limited initial financial backing, emerged in a market where regulation was uncertain, the infrastructure was poor, and the market potential was unknown. It seems as if Chinese technology startups meet few of the favorable conditions emphasized in existing entrepreneurship literature for starting up a company. Nevertheless, the companies studied here survived and thrived, despite fierce competition. The initial resource limitations did not prevent startups from pursuing success. To the contrary, the unfavorable conditions triggered young companies to generate their own capabilities, such as building consumer PC products and distribution networks at Legend, and managing "net friends" resources at Sina, to respond creatively to local conditions.
### 5.1 Findings

#### Table 5.1.1 Major Findings

<table>
<thead>
<tr>
<th>Findings</th>
<th>Examples</th>
</tr>
</thead>
</table>
| Importance of Initial External Resources | **First-generation:**
|                                   | Source organizations’ reputation and technologies → competitive products and initial market success |
|                                   | **Second-generation:**
|                                   | Overseas business connections → finding business models; building standardized management systems (Sina and Sohu) |
|                                   | Capable engineers → competitive products (Netease)            |
| Richer resources do not guarantee success ... | **First-generation:**
|                                   | Legend (least resources) versus Founder (prestigious technologies) and Great Wall (strong government support) |
|                                   | **Second-generation:**
|                                   | Sina, Sohu, and Netease (limited financial and other resources) versus Sino-foreign joint ventures such as Chinabyte (sufficient financial resources and government connections) |
| ... because  
1. Resources did not turn into capabilities | **First-generation:**
|                                   | Founder's R&D force                                          |
|                                   | **Second-generation:**
<p>|                                   | Overseas managerial expertise                                 |</p>
<table>
<thead>
<tr>
<th>Findings</th>
<th>Examples</th>
</tr>
</thead>
</table>
| 2. Resources became hurdles to building capabilities | *First-generation:* Initial success at Great Wall and Founder  
*Second-generation:* Overseas managerial expertise  |
| Capabilities matter                  | *First-generation:* Legend: Ability to manage inventory; marketing skills; ability to build and manage distribution channels; ability to identify local needs; internal managerial capabilities  
Great Wall: Ability to create and manage OEM systems  
*Second-generation:* Sina: Ability to understand the essence of online news services, to manage "net friends" resources  
Sohu: Marketing skills  
Netease: Software development capabilities  |

Where do capabilities come from?  
(Channels for building capabilities)  
1. From external resources  
*First-generation:* Great Wall: Wang Zhi’s prior working experiences at the MEI Computer Bureau → creating the “Great Wall Model”  
*Second-generation:* Sohu: Roberts’s tutoring → managerial skills and know-how  
Netease: software engineers → technical capabilities.  
2. From strategic alliances  
*First-generation:* Legend: Foreign brand agent sales → product design abilities; internal managerial skills; ability to build and manage distribution channels  
Founder: Foreign brand agent sales → PC division’s managerial skills  
*Second-generation:* n.a.
| 3. Trial-and-error learning | First-generation:
Legend: Unsatisfying performance of first generation of 1+1 Home PCs → ability to design and market consumer PC;
Failure in R&D efforts → began cultivating market know-how through Ji-Gong-Mao model
Second-generation:
Sina: Trying different models → ability to manage forum and news services
Sohu: Trying different models → ability to build online directory services and to come up with “content focus” strategy |
|-----------------------------|--------------------------------------------------|
| Lacking resources could trigger further venture development | First-generation:
Legend: Lacking “market sense” → reform
Not allowed to manufacture PCs → expanded to Hong Kong
Second-generation:
Sina: No money → Banzhu and net friends systems
Sohu: No money → unique marketing techniques |
| Unintended consequences | First-generation:
Legend: Small sales agencies → successful distribution channel management
Second-generation:
Sina: Online forums → sticky user population; skills in user management
Netease: Side-product—homepage hosting service → unique user base creation |

**Importance of Initial External Resources**

Recent studies demonstrate that, for new firms lacking either a reputation or a track record, external ties are helpful in providing both resources and legitimacy (e.g., Aldrich & Auster 1986; Singh *et al.* 1986; Baum & Oliver 1991, 1992; Starr and Macmillan 1990; Rao 1994). This study confirms that initial external resources, although scarce, are crucial for starting and
growing a high-tech company in China. In their founding stage, the first-generation companies studied here all benefited from reputation and technologies accumulated in their seed organizations. Great Wall became the first domestic brand PC maker by employing the PC design and manufacturing technologies (GW0520CH PCs) developed under MEI’s supervision. Founder quickly reached a dominant market position by relying on the Chinese-language electronic publishing technologies (Founder EPS), the R&D outcome of a national research project. Legend survived in its early days by commercializing the Chinese-Character Add-on Cards (LXCards) designed by researchers at the Chinese Academy of Science. Moreover, Great Wall and Founder also gained strong government support in financing or institutional purchasing. The government also arranged a series of joint ventures with IBM, which generated tremendous financial capital for Great Wall and saved the company despite its declining performance.

External resources played a major role in Internet companies’ development as well. Overseas connections inspired Wang to initiate the Internet-related businesses, and this eventually led the transformation of SRS (Sina) from a software developer to an Internet player. At the same time, Robertson Stephsen helped SRS dismiss its naïve approach of operating the company based on family members’ control and build managerial systems based on Western standards. Without his U.S. connections, Zhang would have had no chance to meet the author of Web Architecture and to be the first in China to recognize the potential of online directory functions. Under tutoring from Roberts, Zhang began to understand the importance of conscientious cost control and of establishing Western-style finance, accounting, and other

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402 Lu’s study (1997, 2000) claims that these companies’ technological capabilities, together with their special governance structure, were the main contributors to success. Although I agree in part with his conclusion, I
management systems. Netease's initial software engineering resources helped the company turn business ideas into reliable services. External resources such as foreign business connections and overseas financial and human capital did not just help these companies with startup processes; later on, overseas resources further increased the market visibility of these Internet startups, and armed young companies for going public on the Nasdaq.

Richer Resources Do Not Guarantee Success

It has been said that richer resources should make it easier for new ventures to emerge and develop (Evans & Jovanovic 1989; Stinchcombe 1965; Cooper and Gascon 1992). For example, having built a behavioral model of entrepreneurial choice, Evans & Jovanovic (1989: 824) argue that liquid constraints “will prevent some people from trying entrepreneurship.” As Cooper and Gascon (1992: 314) argue, “Starting with more capital is likely to increase the odds for success.” At the same time, management studies also recognize that there are “pedestrian resources” that do not contribute or, in some cases, may even have a negative impact on competitive advantage (e.g., Montgomery 1995). The case studies in this thesis suggest that resource richness does not always add value to venture development. Richer resources such as money and technologies gained from the government did not permanently assure Great Wall its leadership position. Founder's prestigious technologies failed to protect the company from losing money and encountering a management crisis. It was Legend, which had the least resources, that gained and has maintained market leadership to date (see Table 5.1.2.). In the early days of China's Internet sector, companies such as Chinabyte enjoyed sufficient financial resources and a close relationship with leading traditional media sources

believing that companies obtained technologies rather than technological capabilities.
such as the *Peoples’ Daily*, but lagged behind the companies studied here in online content services.

There are two reasons that explain why richer external resources are not always positively related to a startup’s success. First, under some circumstances, a startup failed to turn resources into needed capabilities. Founder’s large R&D force, which was originally transferred from Peking University, contributed to the company’s key products in the beginning. However, lacking software engineering management know-how, that rich human capital was not converted into the firm’s technological capabilities. As a result, the company gradually lost its technological edge. Richer resources sometimes failed as well to make substantial contributions to second-generation startups. For example, it was not difficult for Sohu to hire technicians, and the firm did have some very capable software engineers. However, the company put no effort into turning its engineering resources into technical capabilities, which led to weak products such as the Sohu free email system and the instant messenger product SOQ. Sina’s “dream team,” which consisted of Silicon Valley-trained managers, did not know how to conduct business in Mainland China. Netease’s professional managers, who had extensive experiences with big overseas enterprises, did not contribute to the company’s managerial skill-building, but rather were responsible for the company’s delisting on Nasdaq. In many cases, well-trained professional managers with Western backgrounds acted merely as the accelerator for a company’s IPO process and failed to build managerial capabilities.
Table 5.1.2 Sales Revenues of Legend, Founder, and Great Wall (in RMB ¥ millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>85</th>
<th>86</th>
<th>87</th>
<th>88</th>
<th>89</th>
<th>90</th>
<th>91</th>
<th>92</th>
<th>93</th>
<th>94</th>
<th>95</th>
<th>96</th>
<th>97</th>
<th>98</th>
<th>99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legend</td>
<td>3</td>
<td>18</td>
<td>70</td>
<td>190</td>
<td>400</td>
<td>490</td>
<td>750</td>
<td>1767</td>
<td>3015</td>
<td>4760</td>
<td>6700</td>
<td>7740</td>
<td>12500</td>
<td>17600</td>
<td>20300</td>
</tr>
<tr>
<td>Founder</td>
<td>n.a.*</td>
<td>n.a.</td>
<td>50</td>
<td>90</td>
<td>130</td>
<td>200</td>
<td>420</td>
<td>940</td>
<td>1800</td>
<td>2500</td>
<td>4000</td>
<td>6000</td>
<td>7500</td>
<td>8400</td>
<td></td>
</tr>
<tr>
<td>Great Wall</td>
<td>--</td>
<td>--</td>
<td>380</td>
<td>499</td>
<td>579</td>
<td>541</td>
<td>511</td>
<td>1130</td>
<td>1646</td>
<td>1841</td>
<td>1898</td>
<td>3638</td>
<td>8000</td>
<td>11100</td>
<td>15100</td>
</tr>
</tbody>
</table>

*Not available

Source: Legend, Founder, Great Wall, and the Center for Computer and Microelectronics Industry Development Research (CCID)

Management studies reveal that core capabilities may become core rigidities if the organization becomes complacent and resists making changes (Leonard-Barton 1992). In the same way, this study finds that external resources may become a hurdle in a company’s capability-building process. This is the second explanation for why richer resources do not guarantee success. Great Wall did not understand the necessity of building managerial capabilities mainly because government support protected the company from real market competition. Without recognizing the importance of building strong marketing muscles, the firm even dismissed some effective marketing efforts initiated by a number of capable employees. Further, resources gained from the government were not free. The company had to pay back the government support by giving up much of its managerial autonomy. For instance, Great Wall was not able to control the quality of its products because it was forced
to accept assigned component partners to maintain the "level of localization" required by the
government. In Founder's case, complacency over its near-monopoly position, which was
gained smoothly through government support, eventually suffocated the company and failed
to help build the capabilities needed to manage a technology company. In the case of second-
generation companies, overseas resources such as management-related expertise sometimes
caused problems, which obstructed companies' development. Sina's "dream team" prevented
the company from capturing the glory of being the first "China concept stock" on Nasdaq.
Difficulties in coordinating the Western board of directors and Western individuals influenced
Zhang to put more energy into defending the company from competitors by building
capabilities in technology development to attract "sticky users."

Capabilities Matter
Schoonhoven, Eisenhardt, and Lyman (1990) argue that the ability to develop and
commercialize new products rapidly will help a startup increase its likelihood of survival by
bringing financial resources and market visibility. In their study on pharmaceutical startups,
Deeds, DeCarolis, and Coombs (1998) report how a firm's scientific and research capabilities
significantly improve its performance. In the same way, the present case studies demonstrate
that internal capabilities generated along the venture development are crucial for delivering
products, services, or activities that lead to success. A series of price wars helped Legend's
PC sales top the Chinese market. In addition to Young Yuanqin's precise prediction of the
PC market dynamics, and his courage to take risks, it was Legend's capabilities for managing
the inventory and carrying out effective marketing campaigns that enabled the company to
initiate and succeed in these price wars. Legend's localized products, such as Home PCs,
Internet PCs, and user-friendly software packages—all of which further stabilized the
company’s market leadership—could not be delivered without the ability to identify local needs, conduct market promotions, and manage distribution channels. Capabilities in managing its OEM partners contributed the well-known “Great Wall Model,” in which new ways of doing business were introduced. This was a highlight of Great Wall’s early market leadership.

Companies from the second generation offer similar stories about capabilities. Sina’s ability to understand the essence of online news services, manage “net friends” resources, and provide comprehensive and “up-to-the-minute” information distinguished the firm’s online content from other domestic Internet portals. Sohu’s exceptional marketing capabilities not only brought the company visibility, but also helped the company to deliver its new products and services effectively. For example, although the company was not necessarily the first to offer an online search engine in China, its strong marketing campaigns enabled the company to become the best-known firm for online directory and search engine services. Netease’s popular products and services, such as the Chinese-English-language free email system and the virtual community, were based heavily on the company’s strong software development capabilities.

Where Do Capabilities Come From?

The existing literature sees organizational capabilities as the source of competitive advantages. Currently, the question of “where capabilities come from” is capturing increasing attention of managerial scholars. Winter (2000) emphasizes that capabilities acquisition is a learning process. Accordingly, this dissertation discovers different channels, such as initial external
resources, which contains the organization and key organizational member’s prior experiences, strategic alliances, and trial-error-learning, of accomplishing capability learning.

Following the Chapter 2 discussion, resources could be components of or inputs to organizational capabilities. With Wang Zhi’s working experiences at the MEI Computer Bureau, Great Wall was able to create the “Great Wall Model,” a role model for other state-owned companies facing the challenges of a newly emerged market economy. Again, Zhang and his young team gained managerial skills through Roberts’s tutoring; and Netease’s software engineers contributed to the company’s technical capabilities. Sorensen and Stuart (1999) argue that new ventures usually are operated under immature and unrefined routines. Overseas connections in particular helped the second-generation companies build routines that meet Western standards. However, as the evidence shows, external resources do not automatically enhance capability building, and sometimes can even hinder the development.

Case studies of first-generation companies suggest that strategic alliances not only generated significant financial gains, but also were one of the vehicles of capability building. From day one, most ZGC computer-related startups were affiliated with foreign IT giants through the trading of foreign brands. At the same time, it was necessary for multinationals to rely on local partners for further exploration of the local market. Legend’s foreign brand agent sales activities helped greatly to generate capabilities such as product design. For example, Legend was able to bring out its own brand of laser printers after selling for HP; Legend’s

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403 This study finds no significant strategic alliance that played an important role in the development of a second-generation company.
404 For example, Stone Group, China’s largest privately owned IT corporation, is the company with the most joint-venture projects in ZGC. Its partners include Japan’s Mitsui, Mitsubishi, Fujitsu, and Panasonic; the U.S. firm Compaq; and so on.
cooperation with Toshiba led to the firm’s eventual introduction of its own line of notebook products; and its partnership with Cisco helped Legend enter the networking equipment market. Other than providing product design know-how, various strategic alliances have also contributed to building other organizational capabilities that the young company needed. For instance, from his sales agent experience with HP and Sun, Yang Yuanqin learned about basic practices such as marketing, distribution channel management, inventory management, and receivables cycles. He later brought what he had learned to the company’s newly established PC division. Similarly, Founder’s PC division learned about internal managerial skills and gained marketing know-how from Digital through agent sales, and was seen as the only division with advanced management practice in the entire organization. Great Wall was the only PC maker that had a chance to form several joint ventures with IBM. Although all IBM-Great Wall joint ventures (always under IBM’s managerial control) have performed well, Great Wall as a whole did not become a second Legend, which has used alliances as the means to cultivate managerial capabilities.

Recent management studies of capabilities have again demonstrated the importance of learning from repeated practice and failure (e.g., Eisenhardt & Martin 2000). The evidence shows that, in many cases, trial-and-error learning has contributed the most to Chinese high-tech startups’ capability-building. This is mainly because resources such as financial capital have been limited, there has been little experience to draw upon, and the market demand has been vague. In most cases, companies acquired capabilities as they reacted to evolving

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405 For example, when Microsoft China announced the general availability of Windows 2000 simplified Chinese version in March 2000, it emphasized the strong and wide support from the local IT companies.
customer needs. At the same time, as a “satisficing” rather than “optimization” process, trial-and-error learning is expected to be “cost efficient and effective (Simon 1987: 244).”

Legend was not born with the capability to make products that matched the local market conditions. The initial launch of its 1+1 Home PCs series was not a success. Through that failure, Legend learned that its products must adapt to the market needs, which the company had never thought through before in the PC design. The firm began to cultivate its capabilities to make tailored products and utilize the company’s tight-linked distribution network to gain market information. “Home PCs” eventually turned from ideas, speculative concepts, and PR campaigns into Chinese user-tailored products, and made improved versions of Home PCs and Internet PCs market blockbusters. Legend’s unique growth strategy—Ma-Gong-Ji (Trading-Manufacturing-Technology)—reflects the firm’s capabilities in knowing how to conduct business in China’s IT market. Yet, in the beginning, the company had no experience operating a technology startup in a newly emerged market economy. Only after negative market reactions to some R&D outcomes, such as the new-generation LXCard and the MulticonnectionCard, did the company begin to realize that technical excellence was not everything, and that business know-how in marketing and sales was what was most needed.

Similarly, all second-generation companies studied here experienced failures as they pursued new business models. Neither SRS (Sina) nor Netease succeeded in their online search engine service, while ITC (Sohu) failed to attract visitors to its “China Industry and Commerce Network.” But in making the effort, they learned step-by-step how to analyze user needs, and introduced suitable products and services, such as online directory services, that brought them greater market success. At Sina, the capabilities of managing net friends gradually led to the
formation of routinizing systems such as organizing topics, rewarding authors, and distributing articles. Chen’s practices as a “net friend” and a Banzhu at SRS made this young electronic engineer, who had neither education nor a working background in the media industry, a master of providing online content. In Sohu’s case, unlike its first attempt to become a “content provider,” the company’s new round of “content focus” strategy was based on a profound understanding of the special features of the media industry in China, which was gained through market practice.

Lacking Resources Could Trigger Further Venture Development

Studies emphasize the prior resources/capabilities base, called “absorptive capacity,” as an initial condition for learning externally, since it enables a company to recognize, assimilate, and apply new resources and capabilities (Cohen and Levinthal 1990). However, the present case studies show that some firms seem to do more with less and end up as superior organizations. Evidence suggests that lacking prior resources can make a firm more alert to new ways of development, and create stronger incentives for the company to participate in learning. Legend’s 1994 reengineering of its PC division was triggered by the awareness that the company lacked “market sense,”406 which was among the essentials for competing in a market economy. In contrast to Legend, which was eager to learn from its foreign partners, Great Wall failed to generate capabilities, despite the fact that it had equal or better chances than did Legend to work with multinationals. Sohu, absent funds for advertising and public relation, was forced to come up with unique marketing techniques, such as making Zhang a public figure. Financial constraints encouraged Sohu to develop an innovative model of organizing inexpensive content from traditional media, which was adopted as a common
practice among Chinese portals. As Zhang commented, “When you have limited money, you become extremely creative.”407 Since there was insufficient financial capital to hire extra staff, SRS established “Banzhu” and “net friends” systems to help the company run its forum service. This later led to the company’s ability to differentiate its online content channels.

In his study of the Japanese automobile makers Toyota and Nissan, Cusumano (1985) described how young Japanese firms turned their historical disadvantages in technology and management into competitive advantages. For example, to deal with poor quality, Japanese makers came up with effective supplier management and achieved a famous subcontracting system with high quality and at low cost. Faced with the difficulty of producing a variety of models in a small market, Japanese companies innovated in process technologies by using techniques such as “rapid machine setup and mixed assembly and manufacturing” (Cusumano 1985: 377). Similar observations in this study confirm that a company may make the most from an unfavorable environment.

Unlike state-owned and -run companies such as Great Wall and Langchao, Legend in the beginning was unable to obtain PC manufacturing quotas from the government. This constraint forced the company to expand to Hong Kong for growth opportunities. That move made it possible for Legend to design and manufacture its own brand of PCs, and to start new businesses in areas such as PC motherboards manufacturing and systems integration. More important, the Hong Kong operation turned into a big advantage—Legend became the first publicly listed domestic PC maker. Learning advanced managerial practices that brought Legend advantages under fiercely competitive circumstances. Yet, ironically, this was

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406 Liu Chunazhi’s wording. Personal interviews with Liu Chuanzhi.
because Legend had no choice but to sell foreign-brand computers, a consequence of having the least financial support compared to Great Wall and Founder.

Unintended Consequences

Winter (2000:985) distinguishes covert learning that "is unintended or at least unplanned by top management" from the overt learning "undertaken when the current way of doing things does not satisfice." Raff (2000) found that capabilities developed in big U.S. bookstore chains (Borders and Barnes & Noble) were not necessarily chosen deliberately at the founding stage. Baumol (1993) suggests that entrepreneurial decisions cannot be made through an optimization process because the consequences of exploiting new things are unknown. Similarly, in the case of Chinese high-tech startups, no matter how well companies might build their capabilities and win over the competition, capability building processes and competitive advantages were unintentional consequences in many circumstances. Legend could not find bigger sales agencies, since they were more willing to work for multinational PC makers. Unlike big agencies, the smaller ones turned out to be very loyal and to be a group that was easier to manage because they had to rely on Legend to survive. This was accidental. Not foreseeing any business opportunity, SRS (Sina) was passively driven by enthusiastic users to grow the online forums. However, online forums eventually brought the company a very sticky user population and generated the "net friends" base, which became one of the most valuable assets to Sina. In the same way, pursuing Wired's online content model, Sohu had ignored the potential of online directory services until its Web site visiting numbers attracted attention. Moreover, Ding at Netease did not know that his homepage hosting attracted the most active Internet users in the country.

Legend has been an exception in that it has deliberately conducted learning processes through regular seminars and training programs organized by the Legend Management School; and the firm has been very effective in terms of knowledge sharing. At Sohu, Alan Lee, the former COO, also tried to conduct such learning processes through training programs. However, "it was not effective."\footnote{408}

Nevertheless, although the consequences may not be deliberate, in many cases, the companies studied here observed the result on time and took action as soon as they realized the potential. In other words, it is necessary for a company to transform its covert learning to overt learning in order to build needed capabilities quickly.

5.2 Implications and Future Research

This dissertation makes several theoretical contributions. It contributes to the organizational capabilities approach by proposing a framework to conduct a "task-based" investigation of resources and capabilities related to a startup's successful or unsuccessful aspects. In addition to supporting the existing view that resources and capabilities are important in generating success, this dissertation calls attention to the distinction between resources and capabilities. By doing so, it suggests that richer resources do no guarantee success, and underlines the necessity of turning resources into capabilities. The case studies also illustrate the various origins of organizational capabilities.

Examining how young, resource-constrained high-tech startups quickly build organizational capabilities, this study contributes to the entrepreneurship literature by

\footnote{408 Personal interview with Charles Zhang, January 25, 2002.}
providing a bridge to the organizational capabilities approach, namely, by using a resource-based view to explore how a startup develops. The analysis also amplifies our knowledge of Chinese technology entrepreneurship. In addition to adding a China dimension to the entrepreneurship literature, findings drawn from this investigation may also be used to guide studies and practices of technology startups in other emerging markets. For example, normative studies on entrepreneurship in emerging markets can be conducted under the theme of how to turn advanced foreign resources, such as human capital, into capabilities. At the same time, the perspectives that lacking resources and capabilities is not a total disadvantage, and that success can be achieved under constraints, presents new directions for studying entrepreneurship in emerging economies.

This study also has implications for practitioners. Management studies assume the ability to turn technologies into profitable products and to manage a technology company to be more crucial than merely possessing technology excellence. Case studies demonstrate that this is also true in the context of China, where there had been more than 30 years of dominance by a centrally planned economy. One important lesson for Chinese high-tech startups is that merely possessing technology excellence does not necessarily lead to success. In the mid-1980s and mid-1990s, Chinese computer-related companies turned their disadvantage in PC technologies into innovations in Chinese-language processing technologies. However, some companies were unable to maintain their competitive edge because they did not have the know-how with which to identify market needs, market technologies, and manage a technology company. In other words, cultivating capabilities—such as the ability to deliver products and services that match local needs, managerial and marketing skills, and the ability to identify and even manipulate the regulatory climate and explicit or tacit rules of conducting
business in China—is among the key elements to building a successful technology startup in China.

Related to this point, companies should utilize different channels to generate needed capabilities. At the same time, given the unintended nature of capability building, top managers should be alert to possible learning that is taking place. The companies studied here took action as soon as they realized the potential of a set of newly emerging capabilities. Managers should also try to create environments that accelerate such unplanned learning.

Another lesson for Chinese high-tech startups is that the direct transfer of Western management systems is helpful for local companies to build standardized financial and accounting systems; however, in many cases, overseas expertise does not always immediately have a positive impact on Chinese startups’ operations. Companies need to determine how to meld advanced management practices with local conditions.

The findings of this study also have implications for other groups of practitioners, such as China’s policymakers and managers of multinationals in China. For Chinese policymakers, this study suggests that it is important to provide an open environment for startups in industries that allow “fast followers.”\textsuperscript{409} Beyond this, the study provides a broader perspective on economy development in a former planned economy, where large state-owned firms had been seen as the most important driving force of China’s economy. Large state firms are facing difficulties as they attempt to adjust to the mixed economy, and in fact are becoming

\textsuperscript{409} The study suggests that Chinese high-tech startups are most likely to emerge in industries where technology is easy to access. For example, the first-generation companies did not need expertise in the technology of components such as semiconductors, monitors, disk drives, and so on, but did need access to those technologies. Since technologies could be brought into the marketplace, the entry barriers were relatively low. Internet startups
one of toughest problems generated by the economic reforms. Chinese policymakers can help transfer the practices of high-tech startups to state-owned sectors.

This study is also useful for multinationals that compete in China's market. WTO membership will bring more and more foreign companies to China. Although they enjoy much richer resources than local competitors, these firms should understand that the most important thing is to develop capabilities that can provide services and products for the unique market. Moreover, through this study, multinationals can deepen their understanding of how their Chinese rivals compete.

This dissertation provides a big picture of the emergence and growth of China's high-tech startups. It raises questions at a more concrete level for future research. For example, what are the resources most useful in capability building? How can the process of turning resources into capabilities be facilitated? What types of capabilities are needed at different stages of venture development? The findings show that the most successful companies studied here are those that adopted aggressive PR strategies, bringing them rapid visibility and government support. Future studies might explore the specific strategies that are relevant to quick growth.

This study should likewise motivate further studies on Chinese high-tech entrepreneurship. Another potential is to draw a comparison between startups in China and those in industrialized countries to explore further how different contexts affect the entrepreneurial learning process.

emerged under similar conditions. In other words, startups mushroom in industries where “fast followers” are allowed.
Generalizing research findings is always a challenge when employing a case study approach. Although six case studies are not enough to generalize the findings, tentative hypotheses and research questions generated from the detailed observations might be expected to produce a rich base for further studies. Large-scale survey studies based on the current exploratory study will allow for drawing more definitive and plausible conclusions. In the future, I expect to conduct multiple investigations that combine qualitative and quantitative data on Chinese high-tech entrepreneurship.
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