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Virtual Business Chains in the Internet Environment

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Abstract:

Though virtual business has been used in a great scale in traditional commerce activities, the advent of Internet brings new life to this model. The paper firstly discusses the internal meaning of virtual business; then it points out the effects of the Internet to virtual business: making it much easier to realize in the company; helping internet companies and traditional companies to associate; knocking people to grasp the information trait tightly; drawing more enterprises in the loose and dynamic virtual business chains, and with information as the thread, a new role have been discovered. Consequently, the paper discusses the new model of virtual business in the Internet environment: large virtual business chains, Finally several suggestions are provided to companies: actively taking part in the chains, accordingly adjusting their roles and strategies in the company development, constantly digging their core capabilities, and gradually virtualizing the whole company.

Key Words:

Virtual Business, Internet Environment, Virtual Business Chains

1. Introduction

The convergence of computer and telecommunication has revolutionized the way we are living, the process business is conducting and the mode communication is conveyed. The vast spread and multi-application of the Internet into various industries gradually extend the convergence into "internet economy" or "e-economy". This has become the trend and even the facts of those days. With the development of the Internet, the application of internet technology and vast usage of convenient business models have also widened, however the benefit of the Internet cannot separate from numerous Internet users who believe in the Internet power, rushing to surf in unknown websites and purchasing from those retailers or companies. In 1996, it is estimated that global Internet users were only 40 million, but the number is over 100 million in 1998. With the increase rate like this, by 2005, it is said the

Internet user will reach the number of 1 billion.

The macro-investigations of one country's Internet spread mainly focus on the number of computers connected to the Internet, of the Internet users, registered domain names and websites, bandwidth. Take China as an example (see table 1,2 and appendix 1), at the end of 1997, all computers connected to the Internet count to be 299 thousand, the Internet users are 0.62 million; however during the end of 1998, the relative computers reached a level of 542 thousand, while the users' number is 2.1 million; CNNIC newly report said that the users have got to 22.5 million and the computers assessed to internet have also developed to be 8.92 million. The growing trend of the Internet usage cannot be stopped and the large Internet environment is not only the challenges even the opportunities of business development.

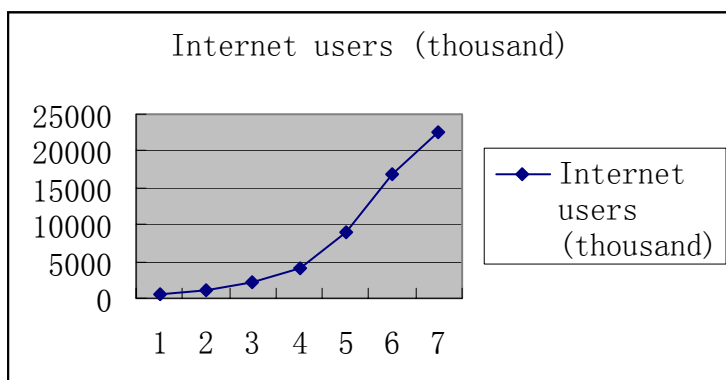


Table 1: the change of the Internet users during 1997-2001

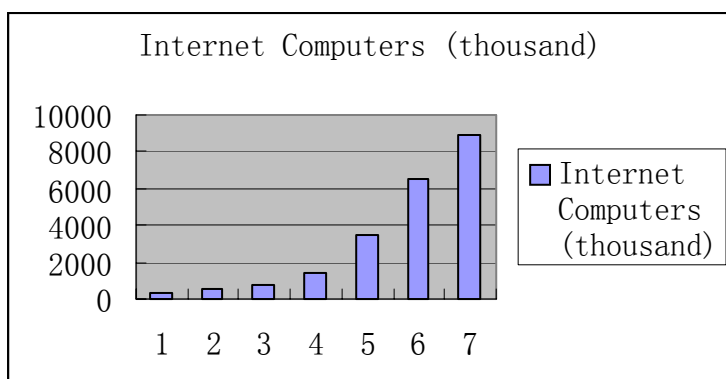


Table 2: the change of the Internet computers during 1997-2001

As early as 1776, Adam Smith had proposed that communities are the results of people pursuing the highest efficiency. Coarse, on the other hand, explained the derivation and evolvement of communities from the aspect of exchange costs. He said that is because entrepreneurs always seek for the highest benefits with the lowest costs. Every newly developed business form largely depends on the environment it survives, so the emergence of new community models are tightly connected with the social environment, technology and living modes. It is no denying that virtual businesses can help companies expand their business sphere with the least cost of money, labor and materials. This form has existed and developed in a large scale before the appearance of Internet, however it was the advert of the Internet and its meteoric expansion and the widespread use that have totally transformed the marketplace. With the elimination of space limitation and the fast way of communication, the step of virtual businesses has been quickened. With the emerging Global Information

Infrastructure (GII), the Internet is not only supporting the physical marketplace worldwide but also is creating a new virtual market served by virtual enterprises. Undoubtedly, virtual businesses are the ideal way of companies to use in their competing strategies. The developing trend of the Internet is positive and the users are growing in a fast speed. Right now the Internet has affected companies' virtual business strategies and this will go even further in the future, so it became the urgent business for entrepreneurs to turn their eyes on their business processes and transfer their thoughts in conducting commercial activities.

Based on these backgrounds, this paper mainly discusses the virtual business in the Internet environment. In part one, the paper firstly discusses the definition of virtual business, it then casts back on many literatures for various theories of virtual businesses. Consequently it points out the influence of the Internet on virtual businesses, which is also the origin of vast spread of virtual business in the Internet environment. The elimination of space distance and time limitation has accelerated the rate companies communicating and dealing with each other. In the Internet environment, companies connected more tightly and the business chains grow to be much bigger. Virtual businesses in the Internet environment contain many companies of different stages, it can be deemed as the virtual business chains, which are similar to virtual value chains.

2. Literature Review

As for virtual business, there are many papers all over the world doing research on these. The word "virtual" has been brought out for over ten years, however the exact definition is still in discussion. Researchers from different spheres and industries hold their own thoughts, and point out dissimilar definitions. American famous researchers Roger Nizer² firstly proposed "virtual enterprise" in 1991. Seeing that market changing is drastic and product cycle is gradually shortened, Roger suggested companies connect each other, so that they can use resources of others and realize the maximum resources utilization. Analyzing from the aspect of product, William Datowan¹ regards virtual business as the strategy to accommodate to market changing. Doctor Daly², who is called the "Investment Fund Elegant Doctor" sees virtual business as the way to put all the energy into what they are good at, and outsourcing the other works.

Computer and network researchers understand virtual business and also virtual enterprises from the angle of information technology, they think that those communities are real virtual ones: they are connected through network, have no physical addresses and perform commercial activities just through the Internet. For example, Yahoo, Sohu are this kind of companies.

There are also researchers who focus on community structures. The common definition describes virtual enterprises like this: they are communities without fixed structures, they usually have all the functions of a company but they do not necessarily contain all the departments to perform these. According to Rui², virtual business is to realize the specialty of functional traits, the mobility of organizational structures and the cooperation of performing modes. He further puts out that virtual enterprises can be classified into two forms: structural virtualization and functional virtualization. The former one refers to the Internet companies of these days, they have no fixed company addresses, fewer employers

and even no physical buildings. What they show in front of customers is just an image. The Internet provides the condition and convenience for those companies to develop: Internet travel companies, Internet retailers and so on. The latter ones mainly indicate companies that have virtualized many functions, they look the same as physical companies from outside. The only difference between them exists in the managing thought: virtual enterprises only hold their core capabilities and perform this part. As for the other functions, the companies will turn to others for cooperation. Famous examples have been many: Coca Cola only holds the core technology and virtualizes all the others. Nike, the biggest sneaker manufacturer of the globe, surprisingly produces no shoes. And even the second biggest automobile manufacturer of the world----Ford¹¹, possibly, the car gates can be from Greece, the cushions from France and the tyres from Sri Lanka.

As we have pointed out, the development of each industry cannot separate from the background it survives in; on the other hand, different developing stages of one industry will affect the individual community's form. Internet brings a brand-new environment to each industry as well as the companies in it. It brings together many hints to those entrepreneurs, lets them rethink their strategies in the Internet environment. The Internet facilitates Internet companies to grow in a rapid speed, so structural virtualized companies appear to be common. Whereas the functional virtualization strategies have been utilized in companies since long before. Therefore, companies in the Internet environment include not only the virtual enterprises of the traditional meaning but also these Internet companies. Here our point is that the Internet affects companies' idea of virtualization, derives a new aspect for them to see the investment chance and further provides them opportunities to work well.

Virtual business is a dynamic strategy of a whole company. It is the product of adapting to the ever-changing market and withstanding other competitors' severe warfare. The principle is to reasonably integrate resources in and out of the company so as to realize the maximum benefits. The main aim is to reach the conciseness of the company's inter-structure and the intensification of companies' cooperation. Through flexible operation, the idea brings suppliers, manufacturers and customers, competitors together, further sets up a dynamic network. With the Internet coming, this network grows to be even bigger and the cooperation to be even tighter.

3. The Affect of the Internet to Virtual Business

The Internet indeed create some kind of miracles which make people believe internet is powerful, so they watch, enthrall and invest in this whole new world. There is no denying that the Internet environment will bring many benefits to our human being, but people are still discussing the real and potential influence of this giant. Virtual business is no exception:

1. *The elimination of space and time limitation pull companies much closer.* Before the emergence of the Internet, virtual business strategies have been used very often. However there are some insurmountable difficulties. They are result not from the companies or the managing ways themselves, still they are not from the severe competing market. The primary causation here is the less convenient communication and far distance. Suppose one virtual company performs only the R&D function of the whole manufacturing process, the other functions have been virtualized to different companies elsewhere. Also assume the company

performs very well and gains great profit. Yet there are still problems: inevitable costs in commercial communicating like telephone charge, inefficiency of information transfer, and unnecessary personnel payout. However the Internet changes everything: the fact that the Internet shrinks the whole globe into a village hints the prompt information transfer; the popularization of computer and the increase of internet users undoubtedly reduce the costs; with the help of internet, efficiency and the effectiveness have been greatly enhanced. Accordingly, companies in the Internet environment have the convenience to contact more tightly with less costs and efforts, this indubitably helps companies of all over the world to cooperate in a large scale.

2. *The emergence of the Internet companies causes the integration of digital & physical sphere.* One great impact of the Internet is the emergence of many Internet companies. These Internet companies mainly refers to website companies like e-retailers, e-travelers, ICPs and so on. According to the former definition, they are classified into the category of structural virtualized companies. Some of them have physical upholds and some have not. The furious competition in the market accelerates the integration of these two forms. Hence the Internet companies actively seek for the stable support of traditional ones, whereas the traditional companies turn to the Internet ones for the sake of earlier informationization. Hence it is very clear that in the Internet environment, Internet companies and traditional ones unite together to realize the virtual business.

3. *Information or information products can be shared in the Internet environment.* One distinguishing characteristics of network and traditional economy is the commercialization of information. Under the network economy, information can be bought and sold like producing factor. This is also the presupposition why many Internet companies set up and possess relatively good anticipation. Since information can never be absolutely consumed, it can be sold and purchased for numerous times by incomputable consumers. Hereby we find new resources for companies to share in the Internet world: information or information products. They are also the thread to connect companies to perform virtual business.

4. *Virtual business sphere turn to be much wider owing to the variety objectives to deal with.* It has been a routine to think that Internet companies (website companies) seldom take part in the product-value-creating process, and they usually act as the agents, distributors and sellers. One main reason lies on the ground is the impossibility for website companies to manufacture physical products. But they all overlook the one fact: what can be purchased as a commodity in the Internet environment are not only confined to physical products, but should also include information products, good operation systems and even successful business processes. Consequently, Internet companies also can be commodity providers. Owing to these new pieces of idea in the Internet environment, the virtual business turn to be much wider and more dynamic.

5. *The Internet brings new life to virtual business.* If there is little doubt that virtual business is the idea model for companies to stand well in the competition, then that will be certain that the Internet brings new life to virtual business. In the Internet environment, the relationships of companies tend to closer than before, entrepreneurs naturally take virtual business into their consideration.

6. *The network economy lead companies to have infinite boundaries.* Coase¹⁵ defines the boundary of one company like this: “one company’s boundary reached when the transaction

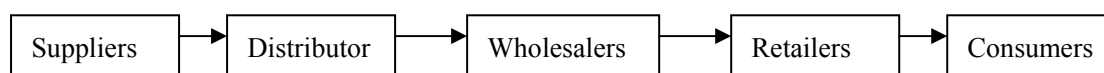
costs with other companies occurred in the external markets equals to those of the internal ones". The Internet brings many new traits to the market and every company, therefore the boundaries of companies change correspondingly. According to Li¹⁶, the companies' boundaries have the trend to enlarge because of lock-in, favorable feedback and non-interoperability. Thus companies in the Internet environment possess a larger boundary, which is flexible and adjustable. The large boundary can contain many other companies regardless they are Internet ones or traditional ones.

In the Internet environment, companies competing, operating and running in the market include not only traditional companies but also the Internet companies as well. It is the information that brings them to have commercial cooperation, and jointly utilize resources. The central goal of communities to gain maximum profits is to realize the biggest output with the least input, so does the virtual business idea. For example, SOHU, one successful ICP in China, always presents to customers abundant information in the website. However he cannot make the news, entertainments and various softwares by himself, for this will weaken the core capabilities. The best way is to ask help from other places. Therefore, SOHU have come to agreements respectively with medias like CCTV, Southern Weekends, Dow-Jones to ask for information; with companies like Compel, HP, Legend to have technological support; and with entertaining companies to buy software. Thereby in the Internet environment, there appears a new role: the content processors. The main job for them is to buy contents (commodities) from other resources, then processing these commodities and adding their own characteristics, thus present the wholly new products to customers in their own name.

In a word, the Internet affect the virtual business strategy of companies in many ways: making it much easier to realize in the company; helping internet companies and traditional companies to associate; knocking people to grasp the information trait tightly; drawing more enterprises in the loose and dynamic virtual business chains, and with information as the thread, a new role have been discovered.

4. Large Virtual Business Chains in the Internet Environment

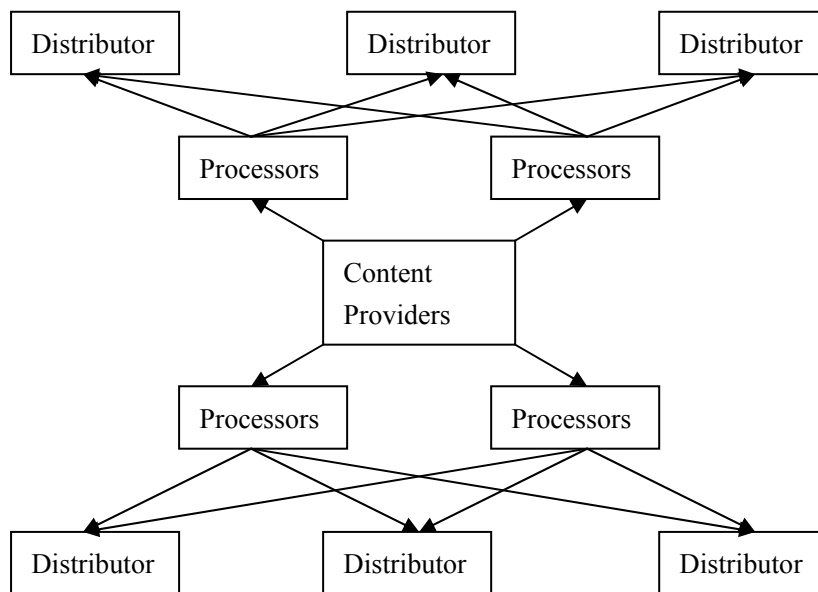
In the industrial era, companies tend to be full-rounded, internalized, and individualized. That is to say, each companies, whatever the larger ones or the smaller ones, they have their own dependent value chains. This line begins from resources providers, going through the product manufacturers, distributors, wholesalers and finally to retailers, customers. (as in the picture 1)



Picture 1: the value chain of companies in industrial era

From the above discussion, it is obvious to everyone that companies of information era operate virtual business in view of their peculiarities: specialty, cooperation and looseness. With the advert and rapid development of the Internet, companies under the new environment have to consider the other strategies. It has been pointed out in part two that the Internet

indeed affects companies' virtual business strategies. Companies connect and influence each other, and finally large virtual business chains exist in the business sphere. The chain is similar to the value chain of industrial era. There are content providers, processors and customers. The content providers sell their products to processors from various sphere; then with their own characteristics in the processing, those processors recreate the products; a even larger base of distributors naturally sell the products from processors. As in the example of SONU website, medias like CCTV, Southern Weekends are content providers, and Sohu acts as processors.



Picture2: large virtual business value chain in the Internet environment

Each role in picture 2 has his own traits, so companies can take one or two roles of the large virtual business chains with the eye of their favorites.

Content providers

The application of the Internet in a larger scale widens the contents that can be provided; the elimination of time limitation and long distance make it convenient for companies to spread their products or services all over the world. Specifically speaking, any form of information content, from products to services, from business processes to companies' brands, from operating systems to good e-ordering technologies, they all can be used to conduct virtual business.

Processors

Similar to the manufacturers of industrial era, the main function of processors is to collect contents (products or services) from different resources, in accordance with certain principles. The processors then integrate their own characteristics in the new products, and finally put the products into market in their own name. This can not only seek new profit opportunities, but also provide distributors abundant products. Here the processors act like an information agent. They collect information, process them, and finally find channels to customers. LINKSHARE is the best example. More than 400 e-retailers have contacted with

LINKSHARE to administer their affiliate programs----- programs that enable the other sites to provide links to the e-retailers in turn for a small cut of any sales those links generate. LINKSHARE aggregate all the programs on its own site, providing an easy, one-stop marketplace for affiliated sites. In this network, the e-retailers act as the content provider, LINKSHARE as the processor and the content websites as the distributor.

Distributors

Distributors directly face the customers. Virtual business reduces their costs, at the same time, consumers also can have different choices. Take a very simple example for instance, SOHU is famous for its ICP role, so there must be some websites who are interested in the content of SOHU, they may hyper-link SOHU to their own website, through which the customers can have shortest way to reach SOHU. From here we can see other websites take the part of distributors. Distributors, in another way, are the role to take advantages of the others to gain the benefit. They are like the wholesalers or the retailers in the traditional economy. Because of their existence, the commodities of virtual business can be widely spread.

As the table 3 shows, each role has their own functions, and the relationship is very tight. The virtual business chain is like a value chain, each create its own value in the whole chain. In the Internet environment, there are many chains like this, they connect and compete each other, but they all belong to one sphere. Companies in them also can choose what they like, what they think is profitable. With the changing of the outside environment and the inter-reform of the community, companies in the chains can select their own ones.

Table 3: the functions of each role in the large virtual business chains

Role	Content providers	Processors	Distributors
Functions	Creating original content (products, services, process, system etc)	Packaging the content, selling to distributors. Harmonizing the relationship of providers and distributors	Channels to transfer products to customers of the market

5. Companies’ Strategies Towards the New Tide of Virtual Business

The origin of communities cannot separate from the environment they are living, so the change of outside environment will inevitably brings the need to take reforms towards the industry or the communities in the industry. Therefore companies of this era, whatever the Internet companies or the traditional ones, should tightly follow the environment and adjust the way they are doing business.

5.1 Companies should actively take part in the large virtual business chains

It is no denying that the advert of the Internet changing not only the way companies are doing business but also the chance companies facing. The fast information transferring and

the convenient commercial communicating cut the way of many businesses. Shopping directly from the Internet reduces the retailers' large revenue and broking websites have become a great challenge of brokers. Still there are endless opportunities opening up from other places in the virtual business environment. The large virtual business chains enables businesses to choose where they wish to concentrate their efforts and to cooperate with a myriad of other businesses that can handle the remaining elements of a complete end-to-end service. In the Internet environment, information is the core force. Whereas information can be replicated an unlimited number of times. It can be reassembled and recombined in infinite combinations and it can be distributed everywhere all the time. There are no limits in the shelf part in the Internet: every store is accessible to every shopper, the lane of supply and distribution are wide open, and even the smallest companies can have their own role in the Internet environment. Without cooperators, one company cannot work well in the Internet environment. So companies should actively take part in those large virtual business chains, concentrating their own efforts in the part they are good at.

5.2 Companies should choose the right place in the chains according to specific situation

In the traditional economy, resources are scarce, so the place of companies in the whole industry process is comparatively stable. However in the Internet environment, there are abundant resources outside the companies, and in the companies the content companies share are greatly widened. Therefore companies should choose their places in the large virtual business chains with great care, and even they need to be adept in at refiguring their roles and relationships. The roles of companies in the large virtual business chains are not certain, they are flexible and changeable owing to the changing of outside environment.

The experience of Amazon can be used to best explain the strategy. Amazon is the biggest and earliest Internet bookseller thus far. At the very beginning, Amazon takes the advantage of its early role, attracts many web shoppers. However this role cannot sustain for long, for other on-line booksellers soon catch Amazon and distract many Amazon believers away. Though Amazon is still very strong in the Internet world, but there are strict facts that other potential competitors are just a click away. If Bezos wish to keep his role as a distributor, then there will be endless price wars and vanishing margins, no matter how many and how long different products are distributed. But Amazon constantly repositioned the role he took. In 1996, for example, he launched a program called Amazon Associates. Through this, Amazon took his sites to whatever customers are already are. The more than 400,000 affiliated sites provide their won visitors with hyperlinks that enable them purchase from Amazon; Amazon, on the other hand, pay out 10% to 15% commissions on revenues generated from the deal, and the benefits are far exceed the costs. More recently, Amazon has taken another new role. Through Zshops program, it now hosts many small e-commerce providers on his own site. This shops gain access to Amazon's customers as well as its on-line ordering system. In return, they pay Amazon a listing fee for each item, plus a less than 5% commission on each sale. Zshops program turns Amazon from a processor into a distributor, from which Amazon can adjust their strategy in the large virtual business chains⁷.

5.3 Companies should constantly dig core capabilities

The necessary premise of companies' virtual business is their core capabilities.

Companies in the large virtual business chain act like core cells of the business process. In the industrial era, companies individually developing themselves, and they tend to contain every function in the company development. So core capabilities during that time is the secret weapon of the company to compete with other companies, and they should be protected. However in the information era, and especially in the Internet environment, core capabilities turn to be one kind of commodity that can be sold everywhere. This is resulted from the new traits of the Internet environment: the distance between companies are not so far, and developing speed is fast, so to sell the core capabilities and turn competitors into customers is better than keeping that until competitors catch up with. For example, one competing force of Amazon is his ordering system, instead of keeping that to aging, Amazon chooses to share with competitors and gain benefits from the selling. Hence, companies in the environment cannot be showy about their core capabilities. On the contrary, they should follow the change of the environment and constantly dig their strong points out.

5.4 Companies should realize the virtual functions inside the companies

To virtualize the business is not a very easy thing, for to do business relies not only on the company structures, the managing departments and even the specific functions like virtual marketing and virtual R&D. companies can gradually realize their virtual strategy. That is a long process. Companies cannot be in a haste to virtualize all the departments of the companies.

6. Conclusion

In the industrial era, companies develop themselves based on the idea that companies should be large; in the information era, virtualization become the main thought; whereas with the development of internet, the scope of virtualization is greatly widened and new models also appeared consequently. This new form is called the large virtual business chains. In those chains, not only physical companies but also Internet ones cooperate each other, and formed a tight value chain. Companies in the chains are like individual part of the whole business, what they need to do is just to focus on the part they are good at. So it is a good idea for companies to find their own role with care in the chains. Therefore Companies in the Internet environment should see the challenges and the opportunities, actively take part in the chains, accordingly adjust their roles and strategies in the company development, constantly dig their core capabilities, and gradually virtualize the whole company.

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Appendix 1: The Internet users changing during 1997-2001

Indicators	Internet Computers (thousand)	Internet users (thousand)	Rtd. Domain name under CN	www Website	Total Bandwidth (M)
1997. 11	299	620	4066	1500	25. 41
1998. 07	542	1175	9415	3700	84. 64
1999. 01	747	2100	18396	5300	143. 25
1999. 07	1460	4000	29045	9906	241
2000. 01	3500	8900	48695	15153	351
2000. 07	6500	16900	99734	27289	1234
2001. 01	8920	22500	122099	265405	2799

(the data are from CNNIC)