THE ORGANIZATION AND BUSINESS MODEL OF A SOFTWARE VIRTUAL COMMUNITY IN CHINA

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With the increasing pervasiveness of communication among networked computers, scholars and practitioners alike recognize the value added of Internet based technical forums for enabling work in distributed communities (Hildreth and Kimble, 2000) and networks of practice (Brown and Duguid, 2001). China in particular is an interesting environment to explore the significance and role of specialised technical forums for software development beyond the firm boundary. Internet service providers' set up privately owned technical forums and software engineers join voluntarily such virtual communities for sharing information and knowledge. The organization and business model of such forums however has attracted very little research interest so far. Using a case study approach we present in this paper, the organization and business model of China Software Developer Net, one of the most successful Internet engineering communities in China with more than eight hundred thousands members in 2004. We also discuss how the system design and business model of CSDN service provider has helped to build up a sustainable distributed community and network of practice and creating a dynamic culture for extending information and knowledge sharing much beyond organisational boundaries.

1. INTRODUCTION

With the increasing pervasiveness of communication among networked computers, scholars and practitioners alike recognize the impact of Internet based communities to human society and economy. Virtual communities (Rheingold, 1993, 2000) and networks of practice (Brown and Duguid, 2001) provide interactive meeting places where people can pursue common interests and add value to work related practices. Virtual communities also show potential business advantages with their unique capacity of connecting people with common socio-demographic and professional characteristics across large geographical distances.

Using a case study approach we present below, the organization and business model of China Software Developer Net (CSDN), one of the most successful Internet based software engineering communities in China with more than eight hundred thousands members in mid-2004. We discuss in depth how the system design and management model of CSDN have helped to build up a vibrant virtual community adding value to the work of software developers in terms of knowledge sharing and daily technical problem solving. In particular, we highlight the business model of CSDN, showing how the community service operator makes use of the virtual community organisation to build up a diversified business portfolio, integrating the virtual community into their value chain and generating sustainable revenues from multiple sources.

2. VIRTUAL COMMUNITIES

Since the early 1990s, the Internet has been used as an enabling technology for long-distance communication and interaction, connecting people and generating a plethora of virtual communities. According to Rheingold (1993, p16) virtual communities are the 'social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationship in the cyberspace'. Schubert and Ginsburg (2000) describe virtual communities as the union between individuals or organizations who share common values and interests using electronic media to communicate within a shared semantic space on a regular basis. The emergence of virtual communities rises from people's need to gather and participate in informal public spaces in everyday life and their primordial wish to look for a sense of 'community' (Rheingold, 2000). Jones (1995) has the same view, that Internet based discussion groups spring from the need to rebuild a sense of community. Community is not lost but transformed via the Internet (Wellman, 1979; Wellman and Gulia, 1997). Virtual communities have therefore taken various forms including computer mediated communication groups, such as mailing lists, Usenets (newsgroups), bulletin boards, chat rooms, and multiple user domains (Kollock and Smith, 1999).

Moreover, many virtual communities focus on work related professional practices, for example, scholars in academia (Koku and Wellman, 2002), lawyers (Hara, 2000), computer professionals (Wasko and Faraj, 2000), and open source software developers (Lakhani, and von Hippel, 2000; O'Mahony and Ferraro, 2004). These virtual communities provide opportunities, channels, and venues for professionals to share everyday work related resources, not just information, but also innovative ideas, solutions to specific problems, professional knowledge, and the latest thinking in their field of interest. Many participants treat such virtual communities as a place for learning and professional problem solving (Yan and Assimakopoulos, 2003; Teigland, 2003). Participants benefit from these communities by creating, accessing and exchanging new knowledge, expertise and innovative ideas not available in their local community of practice and working environment (Brown and Duguid, 2001).

From a business perspective, Hagel and Armstrong (1997) have emphasized the relationship-building aspects of virtual communities. The Internet community platforms work as a relational infrastructure providing a public meeting place to bring together people with similar interests, unrestrained by time and space. Many click and mortar retailers enhance their e-commerce web sites with chat rooms, bulletin boards, and other community building features as means of encouraging customers to spend more time, return more frequently, and make more purchases online and offline. It has been also reported that many retail web sites have seen their sales increase after they added such community features (Brown, Tilton and Woodside, 2002). From a commercial point of view, virtual communities of commerce (Bressler and Grantham, 2000) and virtual communities of transaction (Schubert and Ginsburg, 2000) highlight how groups of potential customers who share some common characteristics, may have similar purchasing interests and preferences and therefore regularly congregate in such communities of commerce. Business organizations often target virtual communities as potential customer

groups for direct sales, or integrate these communities into their value chain as the source of information and ideas for product/service development and innovation (Franz and Wolkinger, 2003).

3. ORGANIZATIONAL MODELS OF VIRTUAL COMMUNITIES

Two types of interactive relationships are identified as important to the success of virtual communities: a) participant to participant, and b) provider to participant (Hagel and Armstrong, 1997; McWilliam, 2000). These two kinds of relationships generate two complementary types of organizational models for virtual communities: self-organizing communities, and, communities based on the organizational efforts of their service providers.

Some commentators emphasize the importance of self-organising virtual communities as they are fuelled both by volunteerism and self-interest of their participants. People join voluntarily such community, set up a virtual identity, and get involved in collective discussions, for exchanging information and sharing knowledge of common interest (Rheingold, 2000). Participants collectively create public goods (Kollock, 1998a; Wasko and Teigland, 2002), motivated by both altruistic and self-interested rationales (Wasko and Faraj, 2000). Altruistic volunteerism, the willingness to do a good thing for the others and also the personal interest surrounding a particular topic, often drive participants to actively participate and get involved in the collective activities of such self-organised virtual communities (Butler et al, 2002). Participants get out of such community both tangible and intangible returns, such as completing work tasks efficiently, and also gaining a sense of belonging, self-respect and reputation from the recognition of their peers. For example, Wasko and Faraj (2000) highlight reciprocity, as the key driver for motivating volunteerism in self-organising virtual communities.

Beyond the self-interested and/or altruistic nature of self-organized communities, successful virtual communities also take off as a result of the organizational efforts of their service providers, in particular with respect to the design and maintenance of a community platform (Kollock, 1998b). Kling (1996) summarizes four critical factors in building successful virtual communities, from a service provider's perspective: timely implementation of technology platform, promotion and empowerment of user interactions, reach a critical mass of users, and tailor the service to user needs. As Wellman (2001) points out, computer networks are social networks, and therefore the sustainability of a virtual community, regardless of whether it is a self-organised or service provider led, relies more on the quality of the social relationships within the virtual place, rather than its technological features (Kollock, 1998b). Besides the basic functions of far distance synchronous/asynchronous communication, the design and organization of virtual community infrastructure should take full consideration of the needs of users, supporting the social processes of human interaction and behavioural rules of real world communities, including components that enable such social relationships as friendship, reputation, trust, etc. (Kollock, 1998b, 1999; Resnick et al, 2002).

Key social components of virtual community infrastructure include electronic reputation components, group formation components, conflict resolution components and more generally any component that directly contributes to a social dynamic (Angehrn, Nabeth and Bubirana, 2001). Many of these social components

have been applied in successful virtual communities, such as the transaction records of eBay, in which buyers can track the transaction history of the sellers and feedback of the previous buyers from these sellers. This has similar function as the reputation and credit system in real world communities. Many virtual communities also provide feedback channels for facilitating the communication between participants and service provider (Lollock, 1998b). In order to avoid information overload, segmentation of communication channels are built in the community platform, offering the participants the choice to select and 'tune in' into sub-groups of the broader virtual community (Jones and Rafaeli, 2000). To help members build up persistent relationships in the community, persistent IDs are also supported to further the sense of belonging (Blanchard and Markus, 2002) and build up trust and reputation (Resnick et al, 2002).

4. BUSINESS MODELS OF VIRTUAL COMMUNITIES

Any organization, real or/and virtual, ought to have the capability to generate sustainable profits for surviving competition and growing its business. A business model describes how an enterprise produces, delivers and sells its products or services. Above all, a business model shows how an enterprise generates sustainable revenues from its customer base by delivering value to its customers (Magretta, 2002). Virtual communities orchestrated by service providers, have followed the same business model of many other Internet related services. They were initially offered as a free service, but with the increasing popularity of 'doing business electronically' (European Commission, 1997), research has started demonstrating that virtual communities potentially represent a set of new business models for building successful enterprises (Hagel and Armstrong, 1997; Bressler and Grantham, 2000; Schubert and Ginsburg, 2000).

4.1 Virtual Community as a Stand-alone Business
For many service providers, virtual community is a stand-alone business. Three sources of revenue: advertisement, membership fee, and, direct selling, can be identified with such a business model.

   Advertisement: an online community is often viewed as a target customer group with some similar socio-demographic characteristics and purchasing interests. It is therefore targeted by marketing using banner and pop up advertising, sponsorship and paying linkages as the main sources of revenues for many virtual as well as click and mortar companies (Laudon and Laudon, 2004). Although the expenditure of online advertising still represents a minority stake for the large majority of businesses, it has been continually growing since 1999 generating a sustainable source of income for virtual communities (WAN, 2002).

   Membership fees: participants in an online community are increasingly seen as members who can potentially pay to enroll in the community for making use of its contents or taking advantage of special offers given to the community members. Differentiation of contents, functionality, and potential switching costs are identified as the key elements for a successful membership fee based community strategy. Social emotions associated with a community, such as sense of belonging, friendship, trust or reputation, are thought to increase the switching cost of leaving one virtual community for another, thus assisting in member retention (Blanchard and Markus, 2002; Resnick et al, 2002).

Direct selling: today virtual communities often choose a strategy of free membership, but charge for some specific services or contents. For example, some online newspaper communities such as the Economist and the Financial Times sell some exclusive, high quality articles, or analysis reports, to their online reader community, while they offer them free of charge to subscribers of the print edition. Similarly, in some academic and professional online communities, resources are only freely available to the members who pay membership fees, but chargeable to the non-member participants. In some retailing websites that have community features, community members are more likely to purchase online than non-member users. For example, Brown, Tilton and Woodside (2002) found in a recent study that community members accounted for one third of all users, but generated two third of all online sales.

However, very few virtual communities have been proven to be commercially successful so far (Franz and Wolkinger, 2003). In most cases, revenues from advertising and/or membership fees are not sufficient to cover operational costs, and direct selling has only recently been introduced in such virtual communities. For example, Bughin and Zeisser (2001) report that the marketing revenues of online communities are rather insufficient to sustain such communities. Hence virtual community, as a stand-alone business, seems an unsustainable business model. As a result of its limited capability of generating direct revenues it has become necessary to recognize from the outset that the real value of virtual community is not the direct revenues it can potentially generate, but the value added as an integrated element of a diversified e-commerce portfolio.

4.2 Virtual Community as Customer Integration

The revenues a virtual community can generate may not be shown clearly in balance sheets, but they do contribute in several intricate ways benefiting the community service providers as a whole. For e-commerce operators, virtual community is a fruitful strategy for increasing their traffic and repeat customers' visits on a website. Brown, Tilton and Woodside (2002) found that in media websites community members raise four times the amount of page views per person compared to the non-members. A survey conducted by Mckinsey shows that contrasting to the pure B2C websites that transfer 1% of the visitors into repeat customers, virtual communities have an average member retention rate as high as 18%, and these community members visiting the website frequently are more likely to purchase online and become repeat customers (Bughin and Hagel, 2000). In practice, many e-commerce websites that build up their own online communities have seen an increase of sales both in their online and offline business (Brown, Tilton and Woodside, 2002).

Compared to the traditional marketing media, including TV broadcasting, newspapers and magazines, Internet communication increases both richness of content and reach. A large amount of information can be provided to customers quickly and inexpensively, with additional capabilities of mass customisation (Evans and Wurster, 2000). Internet communication also provides two ways information flows, salient feature of virtual communities with such interactive infrastructure including chat rooms, bulletin boards, etc. Feedback of community members is often valuable for customer relationship management and help business organizations further tune in their services and products to meet the demand of niche markets. Information sharing about a specific product among community members is often more grounded on a particular customer base than the marketing efforts of business

operators. For example, the member recommendation system within the Amazon online community plays a key role in the success of its e-commerce platform.

Virtual communities provide business organizations a direct channel to target specific customer groups and sell directly their products and services. For example, the virtual community babycenter.com, that enables communication among parents who need information with raising up their babies and toddlers, is an online place for both seeking advise and also direct online selling of products of the companies producing baby care products and services. Johnson & Johnson is marketing acne products using online communities of teenage girls (Kenny and Marshall, 2000). Virtual communities are also used to conduct marketing research, based on pop up tests, online questionnaire surveys, and so on (Hewson et al, 2002). Active members who benefit from a community are often willing to answer questions focusing on shared interests of the community. The cost of such online surveys is often much cheaper than offline marketing research. Additionally, the demographic information of members such as sex, age, address, etc., that is generally recorded upon online registration, it provides a sound basis for statistical analysis. By tracking the purchasing history of community members, statistical analysis can also be carried out to summarize customer behaviour in target niche markets.

The knowledge of community members can also help to tailor and redesign existing services or products. In some cases, the enthusiastic members of virtual communities are even directly involved in the innovation process. For example, Duotone, a well-known snowboard manufacturer, initiated a design competition in the online community of the Austrian youth radio station FM4 (Franz and Wolkinger, 2003). MIT virtual customer initiative (http://mitsloan.mit.edu/vc/), a multidisciplinary research project developing new theory and methods for improving new product development process, proposes the direct participation of customers into the product development processes through virtual communities, regards a virtual customer community as an important source of new innovative ideas (Dahan and Hauser, 2002). Knowledge-rich contents produced by community members have also the potential to be directly packaged and sold to other interested parties. For example, in the case of the software engineering community that we study below, the community service provider publishes outstanding technical solutions for all the community members in their own specialized technical magazines and CDs.

5. CASE STUDY: CHINA SOFTWARE DEVELOPER NET (CSDN)

5.1. Some basic figures about CSDN
CSDN (www.csdn.net) is one of the biggest Chinese language Internet software technology forums. It was established by Unisun MDM Digital Technology Company Ltd in 1999, with the aim 'to provide a venue for China software developers to communicate, learn and improve'. Up to June 2004, some 800,000 IT professionals, software developers, and system administrators from 19,000 IT organisations from all over mainland China, as well as Taiwan, Hong Kong, Singapore, and Malaysia, have been registered as members in the CSDN forum. The membership of CSDN quadrupled between March 2002 and June 2004. CSDN has 30 discussion sub-forums, specialising in different software technical areas. During working hours, there are always 5,000 - 8,000 software developers online in the

forum. The large number of online members ensures a critical mass of technical backgrounds of participants in the ongoing online discussions.

5.2. Knowledge sharing in CSDN

With so many software professionals gathered daily in the forum, CSDN is more like a large knowledge factory in which many thousands IT professionals talk freely about their shared topics of interest. Every day thousands of software technical problems are posted and discussed in CSDN. Most of the online enquiries during working hours get replies within a few hours, if not minutes. The usual reply points out what is probably wrong and gives possible solutions. The senders are often professionals who have experience and knowledge of similar problems. It is easy for them to diagnose and solve problems. Most of the replies are less than 5 lines in length, but a few words often seem enough to help solve specific problems. Some posts with original software code may be longer, up to a few pages in length. In some other even longer posts, the contents are obviously copied from electronic technical documents. The senders advise referring to the documentation for finding information about solving the problem. The vast majority of messages are written in mixed Chinese and English language, i.e. the software program codes are in English, and the diagnosis of the problem and suggestions in Chinese.

In some cases, when the problem is rather complex, the questioning and replying often evolves into interactive discussion among many interested community members. The solutions are often collaborative group results. It is common after several suggestions are provided by different respondents for the engineer who initially asked the question to test these alternatives and report back to the forum results of proposed solutions, often including original code, compiler feedback, error logs, input and output, and so on. Although most of the discussions are completed within 10 exchanges, some enquiries get back 30 or more replies. Sometimes this interactive discussion lasts a few hours, even one or two days.

Most of the technical problems posted in CSDN are solved, and when a problem is solved, the service provider places the solution to a 'settled-post' board. Some frequently asked questions are moved to the FAQ board, and some with excellent technical solutions are moved to an 'elite post' board. Participants who do not like to ask a direct question to the forum can search in these boards and get some indirect technical support.

5.3. Organizational model of CSDN

The CSDN platform is based on a bulletin board system. The service provider has put forward a set of rules and accounts to fuel online discussions and keep well organised the forum and its sub-forums. The three most prominent organisational features are: expert point account, reputation point account, and membership grade system.

The Expert Account based on a point system gives a clear indication how expert a member is; and how much of a contribution s/he has made to the ongoing public discussions. Upon registration, each member is given an expert account with 200 points, which increases by 10 points every day. Posting a message adds 5 points to the account. When making an enquiry, the member must promise a number of expert points to the potential repliers, say 30, 50, or more, depending on how difficult the question is and how urgently the reply is needed. The promise has to be sufficiently attractive that other members will answer the question. In order to have

enough points to ask questions, CSDN members must keep answering questions; otherwise, they lose the right to ask questions when individual expert points run out. Members with high expert points are well respected in the forum as they are considered highly qualified experts, have solved many technical problems, and have continuously helped other people in the forum. CSDN publishes online the names of its top 100 experts every week. In the No. 1 position is a member nicknamed *zjcxc*, with 630,881 expert points up to February 1st, 2005.

The Reputation Account based also on a point system assesses how well a member complies with the forum regulations. Every member gets 100 reputation points at registration. Bad behaviour causes deduction of reputation points, for example: breaking the promise to transfer expert points after a problem is solved, using impolite phrases, posting meaningless messages, and the like. In other cases, reputation points increase. When a member has few reputation points, no one cares to answer his/her questions, and the right to post messages is lost when reputation points run out.

The Membership Grade system is similar to a military ranking system but on the basis of expert points. It reflects the technical capabilities of individual members, and also what contributions members have made to the public discussion. The grade is often perceived as an honour and is classified in three categories: novices, middle- and advanced-level members, and multiple star categories. The novices, include the first, second and third levels, with members at these grades having less than 1,000 expert points; middle-level members include the fourth and fifth levels, plus level one and two star members who have more than 1,000 and less than 10,000 expert points. Advanced members are those with over 10,000 expert points and are awarded three, four, and five star honours. Technical advice from advanced grade members usually attracts attention, as such members are highly respected by their peers in the forum. CSDN also awards star membership to those who have made a special contribution to the community, such as, publish good technical articles and provide valuable suggestions for improving the quality of discussions in the community.

From the outset, the management of the forum follows a model of volunteerism based on self-organization. Besides several CSDN administrators, who are full-time staff of the service provider company, most of the daily maintenance work of the forum is done by volunteers. Each sub-forum has two or three board masters, who are selected from the most active members with advanced expert grade and high reputation account. The job of board master is unpaid. The board masters have powers to delete and move posts and replies, deduct or award the reputation points, force-out bad users, move posts to FAQ and elite boards, and so on. The forum also provides direct channels for members to complain (or praise) about board masters to CSDN administrators.

5.4. Business portfolio
CSDN has built up a diversified but integrated business portfolio around its virtual community with many free and fee-based services. The huge membership of the community provides many advantages to its business operations including both on- and offline services.

Free services
In CSDN many digital services to members are free of charge. On top of free

participation in the technical forum, CSDN also provides free email accounts, private chat rooms and instant pop up message services to its members. Community members also freely submit and store their CV into the China Software Developer Database, which is the largest database about IT professionals in China. The company also regularly organizes free technical seminars and workshops for CSDN members in large cities throughout China. The CSDN website daily releases news, reports and technical articles covering a wide range of topics on computer based technologies.

Fee-based services and E-commerce
CSDN provides banner, pop up and rolling up advertisements for IT companies to market their technologies, products and services. Many large IT players, such as Microsoft, IBM, Sun, Cisco, BEA, rent long-term ad space in CSDN. Another segment for advertisement focuses on software training programs, courses and conferences. The international software technology accreditation and certification organizations also pay for ads in CSDN.

CSDN also provides human resource services to IT firms all over the country. In its main-page, ads space is available for recruitment announcements. Organizations pay to access the China Software Developer Database to search candidates. For some top technical positions in large companies, CSDN can help specialist 'head-hunters' to identify qualified candidates from its pool of experts.

CSDN has also an online IT focused bookshop, Dearbook.com, which sells a wide range of IT technical books, magazines, software, computer game, as well as, movie DVDs and music CDs. The bookshop has a friendly user interface, in which potential buyers can exchange ideas, read book reviews and comments posted by peers. The bookshop also provides free downloadable software technology, books and software.

Offline business
CSDN runs a publishing house, focusing on IT related books and magazines. It publishes two software technology magazines targeting different customer groups. *'Programmers'* is a professional magazine targeting software engineers in general. Besides technical topics and solutions, it also publishes articles about technology trends, interviews with IT gurus, market analysis, book reviews, and so on. It is the most popular software technology magazine in China, with a circulation of 80,000 copies per month. At the end of each year, CSDN also releases a bound edition of *Programmers* consisting of the 12 monthly issues plus some key special topics. The 2003 bound edition sold 180,000 copies.

CSDN Development Experts specifically focuses on technical issues in software development, providing technical solutions to complex software development problems. Besides the revenue from subscription, the magazines also brings revenue from the advertisements from the key IT technology providers and technology training program organizers who want to promote their technology and service to the software developers.

Based on its collaborative relationships with the key software technology providers, CSDN publishes annually a series of *Programmers' Encyclopaedia*, covering a broad range of fields such as Java, Visual C++, Delphi, web programming, games and PDA developing. The circulation of these encyclopaedia series added up to 160,000 copies in 2002. CSDN publishes annually a CD,

releasing the best technical solutions from the CSDN forum. Last but not least, CSDN often collaborates with professional training institutes and certification organizations to provide in-company training courses.

6. EVALUATION AND CONCLUSIONS

From the analysis of findings above it is evident that CSDN has integrated its virtual community into its value chain for building up a business model with multiple revenue sources both online and offline. For CSDN members, the attraction of its virtual community comes from the huge volume of knowledge-rich contents it generates supporting members' daily work practices. The huge number of technical problems posted, discussed and solved in the forum establish a fertile ground for continuing success of its online community. The rapidly increasing membership further ensures a diverse knowledge base and positive feedbacks (Shapiro and Varian, 1999) resulting in a virtuous circle for solving problems efficiently and effectively. The ongoing online discussions are difficult to be replicated by competitors and switching costs are set too high, especially after members have accumulated many points for both expert and reputation accounts, got grades and stars. They reciprocally share knowledge and benefit from their membership in this particular community.

Besides technical support, CSDN also provides identity and social support to its members. People share their happiness and sadness, encourage and console peers, offer advice to those who need help in their private lives, share jokes and humorous stories. A sense of companionship and belonging grows as people spend time and interact with each other. They collectively make the CSDN technology forum an enjoyable social place rather than just a technical support centre. In an interview with an active CSDN member, when being asked why he always keeps online in CSDN, he mentioned: "I am used to spend sometime every day in CSDN to post messages and answer questions. I have so many net buddies there... There is nothing strange. If I don't go to CSDN, where should I go?" This statement may seem difficult for outsiders to understand, but the participants in the technical forums seem enjoying and getting a lot of emotional as well as practical support out of their participation in this virtual community.

The system design and organization model of the community are key factors for attracting and retaining its participants. The social process supporting components, i.e. the expert and reputation point accounts, and membership grade ranking system, make the interaction in the virtual community as 'real' as what happens in real world communities, such as communities of practice within software firms (Assimakopoulos and Yan, 2004). The self-organizing model based on unpaid volunteers - board masters – enables the participation of technical experts into the management of the community, not just reducing the running costs, but enhancing the quality of technical discussions. Moreover, many of the online services CSDN provides to its community members are free. This further strengthens the added value of CSDN to its members. As a professional occupation, IT software development has its special characteristics. Software developers have to update their techniques continuously throughout their careers to catch up with the relentless development of new technology. This is one of the key underlying reasons that engineers daily engage in CSDN forum sharing knowledge and experiences.

As we have seen, all the business activities of CSDN are organised and operate around its virtual community. Although the forum does not directly generate revenue and needs continuous investment in maintaining this free service, it provides value to the community operator by exposing a huge potential customer group to the mother company of CSDN. In its business portfolio, Unisun MDM Digital Technology Company has placed its virtual community as the hub of customer integration. The value of such virtual community is accrued by a set of diversified approaches both online and offline, taking advantage of the huge membership of the community. The e-commerce of online bookshop Dearbook.com; the offline publications of technical magazines and CDs; training programs, and publishing house are all directly targeting the community members. Moreover, as many CSDN members are among the senior technology management in their companies, they have influence to the decision making of their company in terms of new technology adoption. This attracts the IT technology providers such as Microsoft, SUN, Oracle, etc. to put investment in advertising in the community.

The implication of the CSDN case for company strategy is that a diversified virtual community business model which integrates the virtual community into the value chain of the company, benefits both community members and operator alike. The valuable contents of ongoing discussions are freely provided to the community, leading to the huge numbers in membership, which in turn generate revenues from other sources both online and offline for the mother company. The free service is the price the company is willing to pay for the great value of customer integration it gains from its virtual community. When a community operator receives good financial returns, it is able to further develop the portfolio of free services, which makes the forum more attractive and influential. This whole process generates a positive feedback cycle and further reinforces the leading position of CSDN as the China's leading software development community thanks to the Internet.

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