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A Service Integration Model of Value Creation: A Study of Commercial Online Communities

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ABSTRACT

This paper presents a service integration model through a study of major for-profit online communities in both North America and China. Our study examines various types of communities and proposes particular means by which these communities might integrate their services with each other. Three integration strategies are identified: vertical integration, horizontal integration, and hybrid integration. The underlying mechanisms, as well as strategies that are needed to design and implement services, are also discussed.

Keywords

online communities, service integration, value creation

INTRODUCTION

With the development of advanced Web technology and widespread proliferation of online communities, the Internet is now entering a new era. Online communities have become one of the most important means for interpersonal communication. The largest online communities in the world, such as MySpace and Windows Live Spaces, already have more than 100 million registered users (Wikipedia.org 2007).

For online communities which have turned a profit, advertisement is still the only source of revenue. Only a few of them have realized their profits by providing innovative e-services. However, it is still not clear how online communities can adopt a sustainable approach to create business value. Companies, under these circumstances, are striving for an optimal business model with emerging technologies. However, they need to understand and devise the right mechanisms for creating business value out of online communities.

An online community is a group of people who form relationships over time by interacting regularly on the Internet, as they have common interests for various reasons (Andrews 2002). The success of an online community depends on a website's ability to develop an efficient business model which could vary dramatically across user characteristics or the technology adopted (Amit and Zott 2001). With the rapid development of distributed computing infrastructures, such as Web services and P2P technologies, an increasing number of online communities attempt to implement new business models through the integration of services offered by multiple websites.

So far little attention has been paid to find out how service integration creates value for online communities. This paper endeavors to fill this gap by answering the following research questions: Can service integrations provide more information and functional usage options to the users of online communities? What are the different mechanisms of providing value to online community members by service integration? More specifically, could we identify some guidelines that can be followed by online communities?

By investigating 94 online communities in North America and 47 online communities in China, we surveyed various categories of popular communities to which our service integration model can be applied. Then we examined the status quo of service integration among online communities and proposed concrete strategies.

LITERATURE REVIEW

Business value refers to the advancement of an economic proposition which may not be necessarily measured directly in monetary terms. The concept of using service integration to create business value has its roots in several prior research streams: the literature of business value of Internet companies, the works on measuring and assessing the value of online communities, and the studies on service integration of Web systems.

Value Creation of Internet Businesses

Research has been conducted extensively on values of Internet businesses (Barua, Konana, Whinston and Yin 2004; Christoph and Jon 2000; Pateli and Giaglis 2004; Rayport and Jaworski 2004; Wareham, Zheng and Staraub 2005). To measure the potential of a business model, Hamel (2000) has identified four factors: efficiency, uniqueness, fit, and profit boosters. These general factors have also been used to analyze the value of other e-businesses. Melville et al. (2004) have applied an integrative model to synthesize what is known about IT business value and to guide future research. Most IT business values models view IT as playing a supportive role for improving the business process and creating business value. Also, such comprehensive view mainly explains how conventional companies use IT to enhance their performances. However, it does not illustrate how pure-play Internet businesses could create business value. Taking a narrower view of evaluation, Gordijn and Akkermans (2001) have proposed assessment of the economic feasibility of a business model based on assessment of the incoming and outgoing values for each actor involved. The use of what-if scenarios can then enable companies to carry out sensitivity analyses for their business models with respect to various financial parameters. The major drawback of this approach lies in the difficulties involved in expressing value flows in monetary terms in most cases.

Another group of researchers investigate the value of the business from the customer perspective (Clemons and Lang 2003; Han and Han 2001). They put forward a framework comprised of value components and value improvement directions (Han and Han 2001), which proposes that customer value can be created and/or enhanced by changing two components: content and context. This framework suggests that improvements in value of both can be achieved by quality enhancement, cost reduction, and customization. The two components proposed partially explain the differences Internet businesses and traditional business on customer value. However, the three approaches that the framework proposes to enhance value are no different from what has been applied in conventional businesses.

Previous research on e-business models has mainly focused on identifying criteria for assessing the feasibility, viability, and profitability of Internet business models. Based on a systematic and practical analysis of a number of case studies, Weill and Vitale (2001) have defined eight so-called 'atomic' e-business models: direct customer, full service provider, intermediary, whole of enterprise, shared infrastructure, virtual community, value net integrator, and content provider. These are 'atoms' which firms can utilize singly or in complex combinations to further construct more sophisticated business models.

These frameworks of value creation provide structured and practical approaches for traditional firms migrating to the web. However, successful online communities create new types of businesses which often do not have any offline counterparts. An online community is not viewed as an atomic component of e-business models anymore. The theoretical models which fit into the traditional business analysis are inadequate to explain the success of these online communities. Business analysts and software architects are beginning to consider new matrices when gauging the business values of online communities.

Business Value of Online Communities

The core competency of online communities lies in creating valuable service models and evolving them at a dramatically fast pace on the Web (Maglio, Srinivasan, Kreulen and Spohrer 2006; Sheehan 2006). In recent years, several theoretical models have been proposed to explain the mechanisms of growing online social structures and realizing the value of online communities. Butler (2001) presents a resource-based model of the internal dynamics of sustainable online social structures, which explains the growth of social capital of online communities. Practitioners can use this model as a guideline to retain resources and build sustainable online communities (Kraut, Butler and Cummings 2002). Preece (2001) proposed another framework of evaluating the success of online communities. Consisting of sociability and usability, this framework provides a basis for identifying characteristics and measures that explain the success of online communities.

Although these frameworks have focused on measuring or explaining the success of individual communities, they did not examine the mechanisms of service interactions among online communities and other e-business websites. In addition, these frameworks have not been empirically verified by real-world cases.

Service Integration of Online Communities

More and more online communities have realized that by integrating intra-organizational and inter-organizational information resources they can improve service quality and create business value. Service integration of online communities has been referred to as online community connectivity with emphasis on the role of technical standards required to achieve information exchange, and as a coordination structure with emphasis on the various patterns of communication among online community members, services, and business models. The development of web technologies and standards, such as P2P, Web services, and Service-Oriented Architecture (SOA), has enabled organizations to explore new communication models and leverage them for competitive advantages. These models varies greatly but are based on the premise that a set of users are interacting over a network towards a common objective or goal; in essence, an online community (Plant 2004).

Research on intra-organizational service integration has proposed models of organizational communication (OC) and organizational systems integration (OSI). Traditional research of OC concerns the exchange of information and transmission of meaning between people in organizational subsystems and between subsystems (Katz and Kahn 1966). Pollalis (2003) proposed a framework of OSI and suggested a strategic co-alignment model by examining three types of integration that impact the planning process and the overall performance of information-intensive organizations: technological integration, functional integration and strategic integration. The framework states that strategic alignment between business and IT can have a positive business impact only if we see an organization's IT components as parts of

a well-integrated organizational system. Research on inter-organizational service integration defines an inter-organizational system as an automated information system shared by two or more companies (Cash and Konsynski 1985). This leads to the concept of data and information exchange among business communities. For instance, B2B e-commerce is a typical model of creating business value through inter-organizational service integration (Plant 2004).

The service integration between online communities and other service systems changes the way the existing service systems are working. It is important to understand which elements of the existing service systems are being transformed by the emerging business models (Chesbrough and Spohrer 2006). For online communities, we need to clarify the relationship of the two issues of value creation: creating business value at the strategic level and integrating services at the information infrastructure level. This is a relatively new area that needs further investigation but only a few studies have partly addressed it.

RESEARCH METHODOLOGY

To investigate the ways in which business value has been created by online communities through service integration, we analyze the representative large online communities and examine the relationship of value creation with service integration. In addition, common patterns and contingent organizational and environmental variables are identified.

Samples of Online Communities

This study selected and analyzed 94 North American online communities and 47 largest online communities in China. The 94 North American online communities were selected from the list of virtual community websites provided by Wikipedia (Wikipedia.org 2007). These representative online communities have different levels of interaction and participation among their members. Among the 79 online communities with known user count, 32 communities have less than one million users, 28 have between one million and ten million users, 17 communities have between ten million and one hundred million users, and 2 online communities (MySpace and Windows Live Spaces) have more than one hundred million users. 6 out of 94 online communities offer membership registration only by invitation. All other online communities are open to free registration. The Wikipedia list of virtual community websites does not contain Chinese online communities, therefore, we identified 47 largest online communities in China from the Yahoo directory, ChinaLabs top list, and the Alexa ranking. Most of these online communities have a user count of between one million and ten million. Two of the largest online communities (Mop and Tianya) have more than eighteen million users. Among the 47 websites, 17 of them retain the traditional BBS features. Others are providing relatively new services, such as blogs, social networks, video sharing, and online games. All of the 47 online communities are open to free registration.

We separate the Chinese online communities from the North American ones because the design of the Chinese communities and their strategies to attract users could be dramatically different from their American counterparts. However, most existing theoretical models and frameworks are based on studies of online communities in the U.S. and Europe. Therefore, the comparisons between American and Chinese online communities on value creation patterns and service integration approaches are warranted.

Modeling Method

To understand the Internet businesses, Gordijn and Akkermans (2001) proposed three levels of analysis: the strategic level, which targets board-level management, the value exchange level, which primarily addresses the needs of business analysts, and the operational level, which is more related to the needs of system developers. Various analysis methods have been proposed to communicate and share the understanding of a business model among business or technology stakeholders at each level (Pateli and Giaglis 2004).

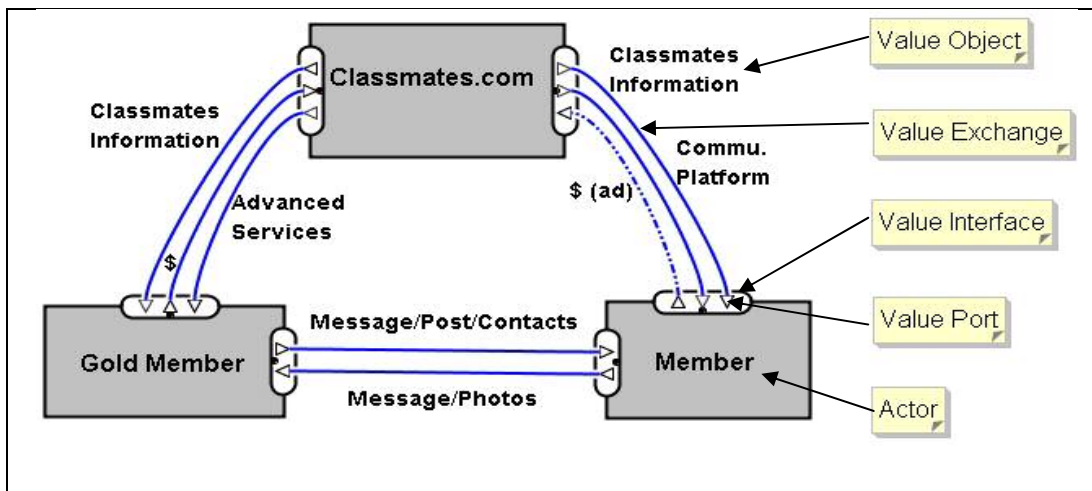


Figure 1. An e3value Model of An Online Community

Our study focuses on analyzing the selected online communities at the value exchange level. We used the e3value modeling tool to depict the business models of the studied online communities (Figure 1). The e3value methodology models a network of enterprises creating, distributing, and consuming things of economic value (Gordijn, Yu and van der Raadt 2006). It provides modeling concepts by showing which parties exchange things of economic value with whom, and expect what in return. The advantage of this methodology is that the e3value diagram allows conceptualizing a business case by constructing a value model, representing it graphically in a rigorous and structured way, and performing a financial sensitivity analysis of the case at hand (Gordijn and Akkermans 2001).

The e3-value methodology models a business case as business actors exchange value objects (e.g. services, products, money, or even consumer experiences). For each of the diagrams, we analyze the flow of the value objects. An online community depends on specific groups of users and the information they provide. For instance, Figure 1 depicts classmates.com, in which a value actor uses a value port to show to its environment that it provides a communication platform to its members. The diagram allows us to model the value exchanges, which are needed to satisfy a particular user need. The e3-value model also depicts the relationships among online communities and other Internet businesses when they exchange value objects with each other. By looking at the patterns of the exchanges of information among business actors in the e3-value diagrams, we can determine whether there is a service integration pattern among the sampled online communities.

A SERVICES INTEGRATION MODEL OF VALUE CREATION

Types of Service Integration

Online community websites and their users continue to innovate and adopt electronic commerce in surprisingly novel ways. It's important to look for trends over time, as a community develops. Traditionally, a lot of online communities have relied on advertising as the primary source of revenue. Our study found that online communities have started adopting new business value concepts for building their value-creation models. Service integration, among some of the online communities, is realized by IT-based and IT-mediated information exchange within and across their web systems.

Among different model diagrams, we found explicit value exchange patterns. These patterns indicate that service integration has become the main trend for online communities to create business value. Among the 141 online communities we studied, 72 use proprietary technology or the open Web standard to integrate internal and external services for value exchange. We classify these websites into four categories: standalone, vertical integration, horizontal integration, and hybrid integration (Table 1).

		Categories of Online Community Websites Studied			
		Standalone	Vertical	Horizontal	Hybrid
International	Number	58	27	4	5
	Percentage	61.7%	28.7%	4.3%	5.3%
Chinese	Number	11	30	4	2
	Percentage	23.4%	63.8%	8.5%	4.3%

Table 1. Taxonomy of the 141 Online Community Websites

Standalone online communities are mainly simple BBS, forums, chat rooms, and so on. Most of them attract users with their content but do not have revenue sources other than online advertisements. In the online communities we studied, standalone online communities account for less than half of the total.

There is a growing trend that standalone online communities collaborate with established e-business websites to share content and increase the customer base. The vertical service integration model can be adopted by online communities that integrate with other business entities to create more profitable services. For example, Travellerspoint is a social networking site for people who are interested in travel and want to share their experiences, benefit from others' advice, or simply develop relationships with people who share their hobby. It has collaborated with other websites (e.g. TripPlanner) to offer travel services like accommodation, travel insurance, hotel bookings, and round the world tickets (Figure 2).

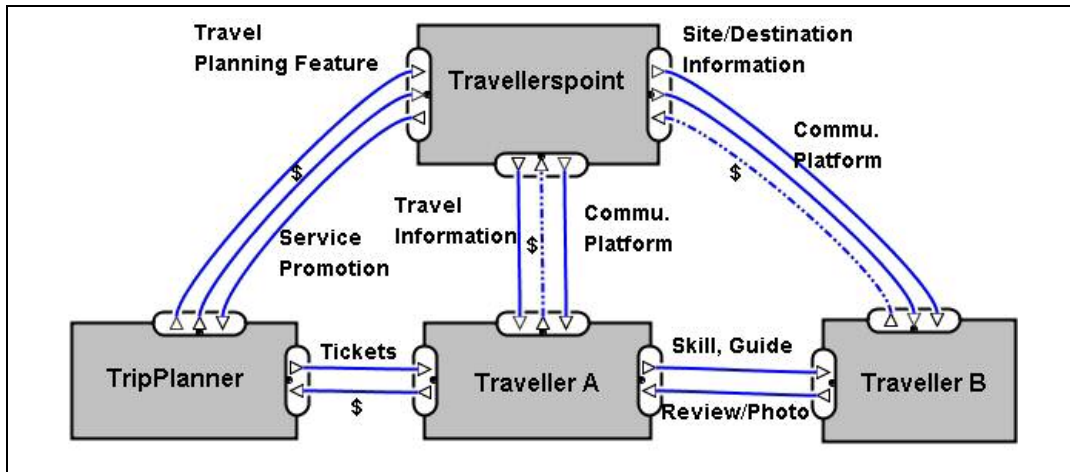


Figure 1. Vertical Service Integration Online Community: Travellerspoint

Different from the vertically-integrated ones, some online communities frequently exchange content and links with each other. These online communities use horizontal service integration to achieve community aggregation. Its essence is to establish some kinds of adhesion and filtering mechanisms to collect the features that attract eyeballs and present them to the users. Community aggregation may facilitate sharing of content, advertisement space, and membership subscriptions among the partner websites. For example, Blue Dot realizes community aggregation by allowing users to find, save, and share Web content with their friends, and ultimately discover and learn new things about one another. Users create a profile and install a browser button that allows them to "dot" any page and display a link and a short comment as part of the profile. This system can function as a collaborative tool. A project leader can dot any pertinent data; a teacher and a class can share pages acquired through searches about a particular topic. Horizontal service integration has also become a new trend in Chinese online communities. For example, Qihoo.com provides search listing and indexing services to other online communities. It attracts visitors by providing reference links to the most popular posts searched from the linked websites. When more users are using Qihoo's search portal to find posts of their interest, they are entering an aggregated community (Figure 3).

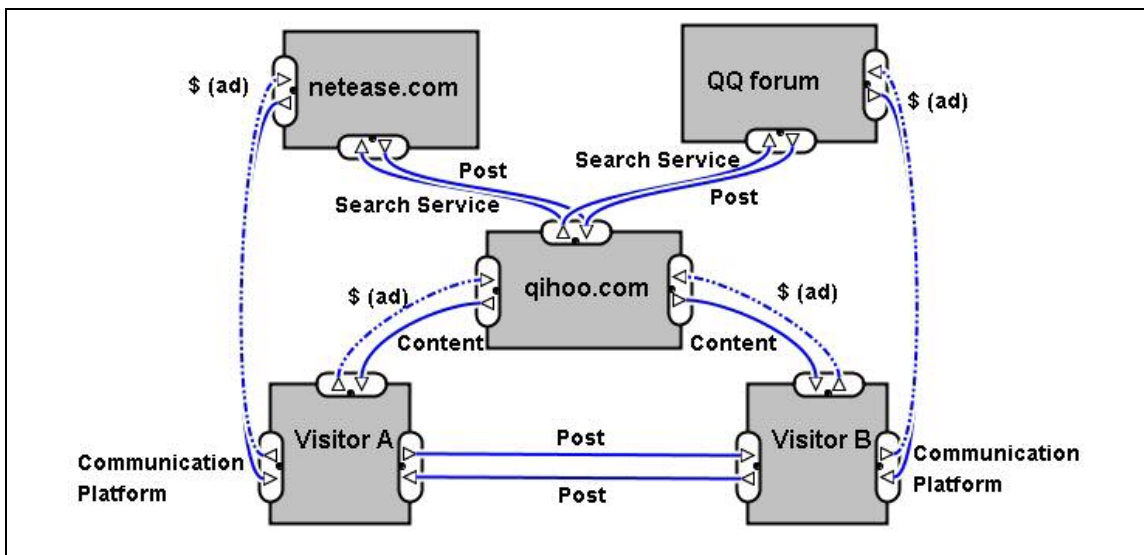


Figure 3. Horizontal Service Integration Online Community: Qihoo.com

Online communities from the fourth category, i.e. hybrids, integrate with other business models and also provide integration channels to integrate with other online communities. These online communities use hybrid service integration strategy to integrate with not only other online communities horizontally but other e-business enterprises vertically also (Figure 4). For example, LibraryThing provides social cataloging application for storing and sharing personal library catalogs and book lists. LibraryThing implements an 'add books' feature which will take a title, author, or ISBN and search the holdings at the Library of Congress or more than seventy other public and research libraries, as well as Amazon.com and even its non-English sister sites around the world. The web applications use different technologies to integrate with different online services. From the horizontal integration point of view, searches of Amazon.com use the Amazon E-Commerce Service, while library searches use the Z39.50 protocol. Once the right book and edition has been located, a simple click adds it to the user's catalog, at which time personal tags may be added to suit one's own organizational needs. From the vertical integration point of view, LibraryThing has added features of integration with several book-swapping websites in 2006. LibraryThing pages for books include a

"swap this book" link, including how many copies of the book are available at book-swapping sites and the number of people who desire a copy of the book. Clicking the link displays a page of links for the various book-swapping sites LibraryThing supports, with the site offering the maximum number of copies of that book displayed at the top.

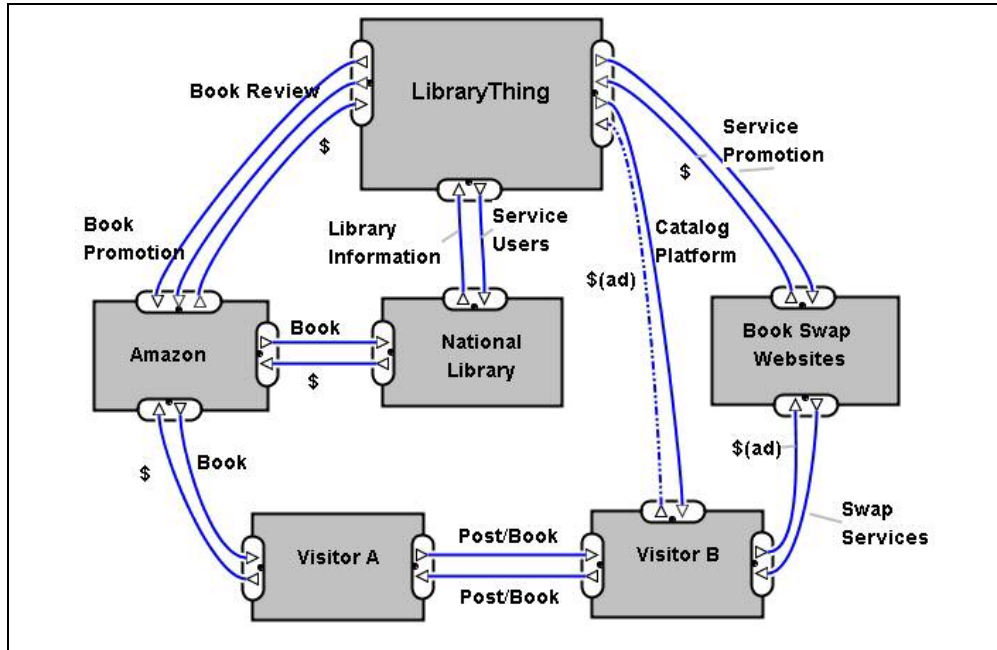


Figure 4. Hybrid Service Integration Online Community: LibraryThing

A Model of Value Creation

The three types of service integration create business value for online communities with different mechanisms. Based on the analysis, we propose a service integration model of value creation for online communities (Figure 5).

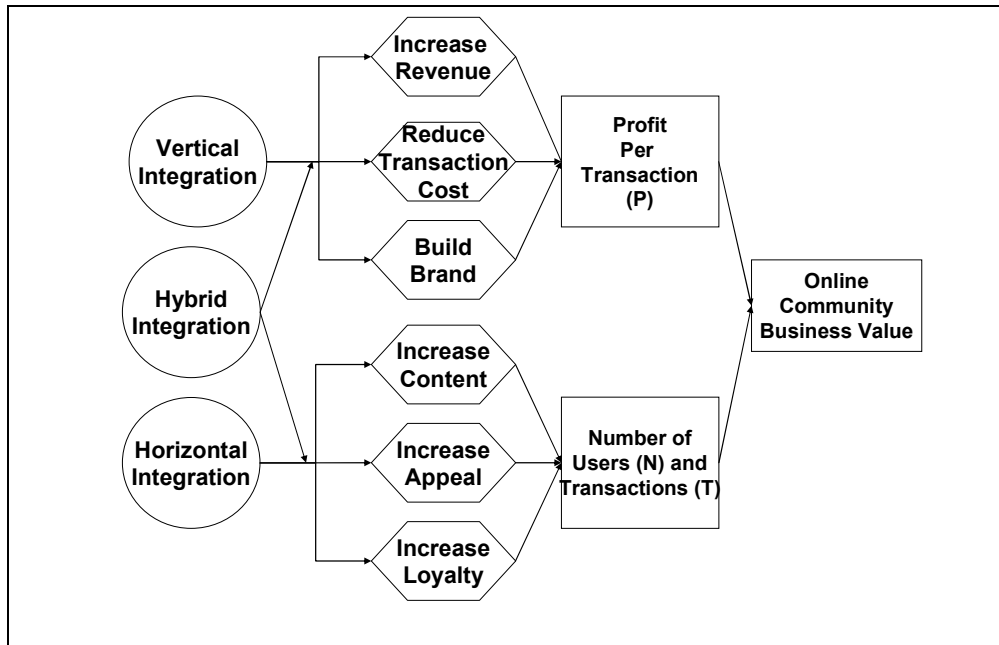


Figure 5. A Service Integration Model of Value Creation

The goal of vertical integration is to fully leverage the user resources to increase the average profit per transaction. An online community's profit is subject to the influence of user trust toward the community, transaction cost, and product quality (Walden 2000). An online community has a theme or topic, and the users share the same interests. Businesses find that it is more efficient to target their

advertisements and marketing surveys to the users of these websites. Vertical integration has the potential to enhance the service value for both buyers and sellers, as it can reduce the existing asymmetry of information between them, resulting in a shift in power toward the customer. Their major business models, integrated with online communities, include content providers, online stores, online auction, service providers and an agency model. These online communities normally receive a high volume of visitors seeking higher quality services. Therefore, online community websites that use vertical service integration can utilize their marketing value.

As described above, vertical service integration can help online communities gain competitive advantage through increased revenue and decreased cost. By integrating vertical services, online transactions become more convenient, which promotes customer loyalty therefore increase number of transactions and sales revenue. Meanwhile, vertical integrated services may reduce transaction cost such as search cost and some recurring cost. Increased revenue and reduced cost make vertical integrated online communities profitable and competitive.

Horizontal integration increases the number of visitors to the websites and interaction among the users through presenting more content and by providing a larger social space. Service integration can enable online community users to expand the scope of their potential membership and service choices. Our research confirms that copying the value proposition of an online community is relatively difficult since the value comes from the loyalty of the members of the community. The process of a member visiting an online community should be viewed as a consumption activity and a consumption process since the visitor puts in time, attention, money, and even emotion, into that process (Hagel 1999). Once an online community earns the trust of a member, the cost of losing a loyal member to another competing online community is very high. To use community aggregation for websites with different themes and membership bases, the members and the content can be shared because the cost of transferring members is reduced. Hence, aggregation of online communities can not only expand the user base but can also build stronger trust among the members and raise the aggregate social capital.

Hybrid integration combines vertical and horizontal integration. It indicates that more resources and capabilities are shared. Users enjoy more power than they did previously, as a result of the creative services provided. Hence, online communities using the hybrid integration strategy are well positioned to exploit this feature. Through content sharing, joint brand promotion, and collaborating with other service providers, online communities can create incremental value and increase conversion rate in a systematic way. Service integrations thus increase their unit profit and user base together and realize higher value.

As hybrid integration combines vertical and horizontal integration, the driving forces of competitive advantage for online communities with hybrid integration can be hybrid as well. However, diversified integration strategy might be at risk of losing focus. Therefore, it is important to balance both profitability in the vertical integration and the economy of scale in the horizontal integration.

The service integration model identifies the three major factors that exhibit the value of an online community (Figure 5): the average profit of an online transaction (P), the number of transactions between two users (T), and the number of users (N). The three types of service integration contribute to enhancing the three factors in different ways. The business value of online communities emanates from two simple sources: increase the number of users and transactions (the N value and T value) and, on the other hand, create and grow profitable services for facilitating transactions (the P value). Service integration helps the online communities to increase their business value by building a larger user base. Social structures are faced with the fundamental problem of balancing the positive and the negative consequences of size and communication activity (Butler 2001). Information technology has the potential to drastically reduce the negative consequences of size, leading to social structures that are either larger or not dependent on the internal structure (Butler 2001). This explains the phenomenon whereby an integrated service becomes increasingly more valuable as more people use it, which, in turn, encourages an ever-increasing number of existing and potential users. The open and interactive way of communication attracts more and more people to get involved and, therefore, the membership base of the community keeps growing. Contents and services then come from the increasing membership of the community.

Service integration also facilitates enhancement of business value by realizing higher profit per transaction. When traditional business value frameworks were used to guide business value enhancement, focus was on product pricing, marketing, operational efficiency and cost control (Hamel 2000; Han and Han 2001). In the last three years, several failed online communities in China simply emulated the U.S. websites and faced this value dysfunction pitfall. Their marketing departments spent too much in time, money and effort to promote the website. Their technical departments used advanced technology to attract users. But since the websites had not figured out a profitable service for the local market (i.e. a positive P value) yet, business value could not be created and the websites vanished. Our study shows that some netpreneurs are finding out that they can turn the intrinsic cultural appeal of communities into a real business proposition. For a successful online community that adopts the new model (e.g. Mop.com), its efforts must be directed at measuring and improving the service quality (i.e., to have a high average profit for online transactions) and attracting more users (i.e. to get a larger user base). This new model also explains why some online communities were acquired at a significantly high value, even though they lacked a service model and were losing money. In such cases, considerations of the purchaser were centered around the high potential of the growing N value of the acquired websites. But the purchaser must have a service integration solution in hand to create a value generating service model and profit from the increased transactions. These may come from various channels such as advertisement, membership, services, or product sale.

CONCLUSION

This study explores the mechanisms of service integration of online communities. The mechanisms of value creation for online communities are different from the conventional businesses. This finding indicates that the success of online communities depends on something more than measuring and improving the service quality and attracting more users. A research model is constructed to help diagnose the current status and determine the future direction of online community business strategies from the perspective of value

creation. Factors and mechanisms of integrating services among Internet businesses can impact business value of online communities. By focusing on feasible service integration strategies, it is possible for online communities to create vigorous business models and realize their full value.

This study helps both researchers and practitioners better understand online communities. The new value creation concept provides guidance to practitioners to understand and analyze their online businesses. Managers can decide to what extent their websites should use service integration by matching the value creation attributes of others to their own website's characteristics. The model can assist websites in choosing appropriate patterns of service integration that match their own online communities' infrastructure and business objectives. They can thus better plan their business models and development strategies.

Future research should focus on developing more objective performance indicators for modeling service integration and evaluating online communities. It is also important to collect more quantitative data and analyze the relationship between service integration quality and the business value. Then we can apply the indicators and measures to more communities and compare the findings with other types of research models.

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