

# The Development of Successful On-Line Communities

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## **Abstract**

*Virtual communities play an increasingly important role in economic, information, and emotional exchanges. Furthermore, some of them have become so large that their social and economic impact can be considerable. At the same time, not all virtual communities seem to flourish, and some perform better than others. This study seeks to examine the main design criteria underlying successful communities, and to identify principles for the design of successful communities. The article is based on a review of the literature, and the study of several communities. As such, it is exploratory in nature. All of the principles will require further in-depth research to test its validity and generalizability. Among the studies of the interesting observations are the (almost) non-sustainability of hub-type (1:N) communities, and the attempt of many communities to reposition themselves to take advantage of community interaction and the social capital that exists in tightly integrated communities.*

## **1. Introduction**

Over the last several years, we have been witnessing the emergence of geographically unbound communities, with vast economic power and impact. For example, by the end of 2001 AOL reached a worldwide membership of over 34 Million subscribers (8 million outside the US, with one million in France and 750,000 in Latin America), seven million more than the year before. With 34 Million subscribers, the AOL “economy” has a larger number of “citizens” than Canada, Morocco, or Peru, and as a country would rank 34<sup>th</sup> in population size (<http://blue.census.gov/cgi-bin/ipc/idbrank.pl>).

If these 34 million citizens make behavioral changes, such as switching from the Internet Explorer Browser to Netscape, it has a huge impact on the popularity of such technologies. If they make economic decisions, such as purchasing decisions, they can have a large financial impact. If 34 million subscribers decide to support a particular cause, they present a formidable

lobby. If they decide to share their knowledge with each other, they can create and access an unimaginable pool of knowledge. And, these 34 million netizens are only an e-mail or instant message away from each other, thus much more directly accessible than the citizens of many other economies.

There are no good models or formulas for creating such communities presently available. Simply creating an infrastructure, such as discussion boards, chat rooms, or file exchange areas is not enough. Successful communities, it appears, have certain structural and “behavioral” characteristics. Identifying at least some of these is the purpose of this article. We will explore the models of on-line communities currently in existence, assess them in terms of potential success and failure, and will explore how a community can be transitioned from one form to another, ideally with more desirable characteristics.

Our argument will unfold as follows. The next section will identify several structural characteristics underlying all virtual communities. We will then explore how these characteristics are represented in different types of communities. We will initially look at communities based on economic principles, and then communities driven by non-economic interests. This will be followed by a discussion of principles for the development and maintenance of such communities. We finally discuss lessons learnt and draw conclusions.

## 2. Characteristics of On-line Communities

On-line or virtual communities are best described as communities that exist in a computer mediated space, which have built up relationships between community

members, and whose activities are supported by information and communication technology, see for instance (Rheingold, 1993), (Hagel and Armstrong, 1997), (Carver, 1999), (Jones and Rafaeli, 2000), (Romm and Clarke, 1995), (Craig and Zimring, 2000), (Hesse, 1995), (Erickson, 1997), and (Ho, *et al.*, 2000). Howard (1993) calls virtual communities “*social aggregations* that emerge from the Net when enough people carry on public discussions long enough, with sufficient human feeling, to form webs of *personal relationships* in cyberspace” (Rheingold, 1993). Hagel and Armstrong (1997) highlight the issue of *member-generated content* (“virtual communities are computer-mediated spaces where there is a potential for an integration of content and communication with an emphasis on member-generated content”). Another definition by Carver (1999) states that virtual communities are “about aggregating people. People are drawn to virtual communities because they provide an engaging environment in which to connect with other people – sometimes only once, but more often in an ongoing series of interactions that create an atmosphere of trust and real insight”.

Building on the work of Chaudhury and Kuilboer (2001), we differentiate communities according to their characteristics, as follows: motive, cardinality of interaction, source of content, and autonomy. Motive differentiates between relationship, information/knowledge interests, or transaction oriented. Cardinalities may be one-to-one, one-to-many, or many-to-many. Content may be member generated (authored), discussion group generated (as a result of interaction), or host generated (meaning that a community member with higher authority controls the content generation for the entire community). Finally, autonomy may be from highly independent to highly engaged, indicating

different levels of social capital.

### **2.1. Motive**

Based on motive, we can differentiate three types of communities. First, there are communities whose primary concern is relationship building and mutual emotional support. This includes for instance communities for those who suffer from chronic illness, and who use the medium to comfort each other. While they may also engage in information exchange and enable the purchase of items via their network, the primary motive should be emotional. Second, communities of interest target the mutual information and knowledge exchange. Such communities include professional groups, such as ISWorld, or groups that exist to foster joint knowledge on a hobby, such as photo.net or the Leica Users Group (LUG). Again, other motives may exist (and members may engage in transactions), but the primary goal is clear. Third, communities may exist to foster transactional and specifically economic interests. Amazon.com for instance has several related communities, for instance to help Amazon "Affiliates" to better sell their products. With some of these communities, the transactional interest resulted in the development of a community (self-help group), with others, the community existed first and then became a market for community related items.

### **2.2. Cardinality**

Communications can take place one-to-one, one-to-many, or many-to-many. One-to-one is the concept of a private chat room. For most communities this is of rather limited use, other than for the personal exchange of sensitive information or sensitive transactions (e.g., in communities

based on relationship). One-to-many communities are hubs. They can be relationship, informational, or transactional hubs. In this model, one party is the main focus point of all communication. The transactional hub model is prevalent in one-seller-many-buyer arrangements, such as a large company with numerous customers. One-to-many information hubs also exist, such as "celebrity websites", where the "celebrity" is, by design, the focal point for all questions and the expert who answers all of them. Many-to-many communities are the most interesting to us because they harness the combined resources of all community participants for the potential benefit of all. They include auction related communities on the transactional side, as well as typical communities of interest with their discussion forums that are open to all. Here, any member "talks to" all other members and is "talked to" by all other members at the same time.

### **2.3. Content**

Content creation differentiated communities into individually provided, generated through the group interaction, and host generated. The individual model is seen for instance in "communities" such as the former Geocities (now a Yahoo property). Geocities originally was a "community" of relatively independent web sites, hosted without cost, and arranged by topical interests. Geocities members would offer their information "take it or leave it" to others, but also engage in communal activities, such as linking their websites (e.g., as webrings). Interaction generated content, in contrast, is largely shaped by the communication between community members. It is revealed through questions and answers, or shared as part of general conversation, or provided by aggregation of existing discussions by other community

members. In ISWorld, for instance, community members may post a question, then collect replies on- and off-line, and subsequently post a summary of the findings on-line. Host generated information is illustrated by web magazines such as ZDNet, where the authors post articles of information and opinion, and then invite readers to comment. Many news websites, including CNN.com now adopt a model of this sort. Similarly, in Geocities, every website owner is also a mini-host. Yet the design principle of Geocities is clearly different, with a large number of mini-hosts being jointly providers of information, rather than a single media site.

## 2.4. Autonomy

Autonomy in our differentiation describes different levels of social capital and this coordination between community members. This can range from very independent, such as with the independent properties in Geocities, to highly integrated communities with well-defined rules of collaboration and a strong sense of community. Interim levels may indicate some levels of collaboration, but also within community fights, and violation of community rules. The Icered.com community shows such lower level of social capital, as communication beyond information exchange largely consists of put-downs and verbal aggression.

## 2.5. Integrative Framework

The various combinations of the characteristics will define a variety of on-line communities, several of which can provide useful models for planners, as depicted in Figure 1. While the figure shows boundaries between many of the positions, the positions are often more fluent. For example, the

transition from loose to tight integration in a community will be dynamic, as can be the transition from host based content to horde based content, to interaction based content. Figure 1 also shows several existing communities and indicates that some of them have changed their positioning. The repositioning paths are labeled with arrows pinpointing the distinct repositioning sequence. This suggests that some community types are in fact more sustainable or more desirable than others and that community creators are trying to take advantage of these benefits by re-structuring their communities, as the next section will be explained.

Many spaces within the suggested framework are left without an example and will not be discussed. This is largely due to the fact that there are few good examples illustrating these combinations of factors. For instance, communities with 1:N (hub) type interaction will have little interaction based content, while network type communities will have generally little host-based content. Even if there is host-based content (e.g., in eBay's site), then this would not be the community's salient feature.

## 3. Communities

### 3.1. AOL

America Online, which is the Internet division of AOL Time Warner, is the world's largest Internet access provider. As previously mentioned AOL has more than 34 million subscribers using the AOL online service and provides the largest on-line community of any ISP. Annual sales for 2001 were valued at \$8,718 million US Dollars. Outside of the US, AOL serves 8 million people in 15 countries over the world (<http://www.hoovers.com/co/capsule/8/0,2163,15558,00.html>).

		1:N (Hub)			N:M (Network)		
Economy	Transactional Need	Loose Integration		AOL		eBay	
		Tight Integration					
Society	Information/Knowledge Need	Loose Integration	CNN Suze Oprah				ISWorld
		Tight Integration			AOL CNN		50s Club RLS
	Emotional Need	Loose Integration	Suze Oprah				
		Tight Integration			AOL		eBay RLS
		Host Based Content	Horde Based Content	Interaction Based Content	Host Based Content	Horde Based Content	Interaction Based Content

Figure 1: Integrative Framework of Virtual Community Types

One of the features in AOL is the proprietary network that offers content (e.g. news, sports), communications tools (e.g. on-line chat, instant message) and on-line shopping, among other Internet services. Other than its proprietary network, AOL also has some on-line businesses including Mapquest, Digital City and Nullsoft, etc. For Mapquest, it provides on-line maps. Digital City provides localized content covering about 60 US cities. Nullsoft offers the popular MP3 audio player. Besides, it also owns Compuserve Interactive Services that has about 3 million users and has operations in foreign countries (<http://www.hoovers.com/co/capsule/8/0,2163,15558,00.html>). With the various services provided by AOL, it attracts a large number of visitors. Sales per subscriber amount to US\$ 23.90 per month (<http://www.aol.com/>).

Its economic motive, audience, and content provision model places AOL in the top left corner of Figure 1. Content is largely host based or provided by other loosely associated hosts (“horde”). The underlying interest is economic, and relationships in the AOL community are relatively “loose”. In fact, in past years, AOL has been plagued by members who lamented its draconian policies (<http://www.silicon.com/opinion/500016/1/1035357.html>, <http://www.sendmail.net/000601lairdmessaging.shtml>). However, in recent years, AOL has tried to change its positioning towards more tightly integrated community development, for instance through the use of its AOL Instant Messenger, chat rooms, personal web pages, and profiles. Hence, Figure 1 shows several positioning shifts for AOL.

“Community is the DNA of the Internet,” stated by Belinda Hankins, Executive Director of Community Operations, America Online, Inc. “People come to AOL to meet other people. We figured that out early on -- and it was what helped us pull ahead of all of the other Internet services.” (<http://www.fastcompany.com/online/60/aol.html>) AOL’s choice of words also reflects this philosophy: “Other companies have customers. AOL has members. In the world of AOL, members are active, they are constantly creating the product, and they are the experts. Almost everywhere else, consumers are passive and valued mostly for their wallets.”

Working along with this belief, AOL spent efforts on developing the community. Based on some speculation, every 3.5 seconds, AOL has a new member joining in ([http://realitytimes.com/rtnews/rtao/2000/1017\\_rmendenhall.htm](http://realitytimes.com/rtnews/rtao/2000/1017_rmendenhall.htm)). Since 1989 when the company officially changed to AOL from Quantum Computer Services, it started to invite members. Four years later, the company had only 500,000 members in 1993. To gain more members, AOL provided Internet access service and offered access to on-line information and services. These services were specifically tailored to the needs and interests of the average American consumer. Another four years later, in 1997, AOL had increased its membership size to 9 millions. And with the third four-year period, by the end of 2001, the company had more than 34 million members worldwide.

### 3.2. eBay

eBay was founded in September 1995, and is one of the world’s leading online marketplaces for the sale of goods and services by a diverse community of individuals and businesses. Today, the eBay

community includes 49.7 million registered users, and is the most popular shopping site on the Internet in terms of the total user minutes (measured by Media Metrix). There are more than 12 millions of items across 18,000 categories on eBay. People come to eBay to shop, buy and sell all kinds of practical, unique, and interesting items, such as automobiles, jewelry, musical instruments, cameras, computers, furniture, sporting goods, tickets, and boats.

The mission of eBay is to “help practically anyone trade practically anything on earth”. To accomplish this, eBay’s trade is operated in a local, national and international basis. Members from all over the world buy and sell on eBay. Currently, eBay has local sites that serve Australia, Austria, Belgium, Canada, France, Germany, Ireland, Italy, Korea, Netherlands, New Zealand, Singapore, Spain, Sweden, Switzerland, Taiwan, and United Kingdom. In 2002, eBay members transacted \$14.87 billion in annualized gross merchandise sales (GMS, the value of goods sold on eBay). In addition, eBay has a presence in Latin America and China through its investments in MercadoLibre.com and EachNet, respectively (<http://pages.ebay.com/community/aboutebay/overview/index.html>).

eBay provides with users tremendous services and features to make the trading convenient, fun, and safe. For instance, buyers can purchase items in auction-style format or items can be purchased at fixed price through a feature called Buy-It-Now. In addition, items at fixed price are also available Half.com, an eBay company. In particular, eBay is dedicated to its community of members, and has numerous services that enhance the trading experience. Our marketplace services include: on-line payments by PayPal; wide array of Buyer and Seller tools; and Preferred Solution Provider programs. Furthermore, eBay

introduced “Neighborhood watch” groups to ensure members learn and follow the eBay community guidelines.

From its inception, eBay’s business model was that of a network (N:M). As an auction site, eBay relied on large numbers of potential buyers and sellers to come together, with eBay only facilitating the transaction. At least initially, eBay’s community was very loosely connected, also representing a horde, more than a community. Hence we would place eBay near the upper right corner of the framework in Figure 1. However, early lessons indicated the importance of increasing community integration. The development of trust was one of eBay’s important challenges. Furthermore, fostering a “self-help” community to allow a new breed of on-line small business to flourish eBay has been an important goal and has resulted in a positioning shift for eBay as well.

As a result, eBay formed the eBay Community which provides discussion boards for members to share interests, get help or assist others; chat for users to post a message or read what members are talking about; and answer center to respond to members’ questions. The eBay community is made up of different walks of people: individual buyers and sellers, small businesses and even Fortune 100 companies. They come together on eBay to do more than just buy or sell—they have fun, shop around, get to know one another, and enthusiastic to help and share. Through the eBay discussion and chat boards, members acquaint with each other, discuss topics of mutual interest, and provide one another with helpful information on trading on eBay.

There exists a sense of community among members of eBay Community which extends to offline activities. eBay members held Members Labor Day picnic, plan

vacations together and chip in and buy special item for another member. They also spent vacation time doing home repairs for other members in need. After the US 9/11 event, eBay community members banned together by donating and bidding on thousands of items in Auction for America, with 100% of the proceeds going to the families and communities affected. This shows that eBay membership has changed to what the community needs and support.

### **3.3. CNN**

CNN (<http://www.cnn.com>) is one of the world's on-line news and information delivery leaders. Its headquarter is in Atlanta, Georgia, and has several offices worldwide. CNN.com relies heavily on a global, dedicated team of almost 4,000 staff, working 24 hours and seven days a week. CNN.com features the latest multimedia technologies, from live video streaming to audio packages to searchable archives of news features and background information. The CNN site is updated continuously throughout the day.

CNN On-line Community was first launched on the CompuServe platform in August 1994, aiming at promoting the value of CNN’s brand as the world’s news leader. CNN On-line Community is primarily text-based chat and message boards. At that time, CNN did not integrate the views and opinions collected from the on-line community into CNN news content. With its information exchange motive, and the aim to control and provide information, we place CNN in the left middle of the framework in Figure 1. But when CNN considered the on-line community contents as editorial necessity instead of editorial extra, she then began to integrate community member-generated contents into CNN’s (<http://www.onlinecommunityreport.com/fea>

tures/clater). The strategy was not limited to on-line community, but further extended to other CNN's services.

The new strategy brought a great success to CNN. The On-line Community discussions have grown to be some of the world's most successful among news and information sites. CNN hosts more than 300 active discussions that generate more than 3,000 new posts each day, and more than 3.5 million page impressions a month (<http://www.infonortics.com/vc/vc2/present/clater.html>). The message board in average has about 150,000 page views per non-breaking news weekday, with only slight drop on weekend (<http://www.onlinecommunityreport.com/features/clater>). When combined with CNNSI.com board traffic, the message boards average slightly more than 1.5 million page views per week.

Due to its well-known high profile guest chats, CNN On-line Community has been experiencing a significant growth for the live chat connections program, TalkBack Live. Because of the growing demand, the group has grown to seven regularly scheduled chat connections to programs airing on CNN, two on CNNfn, one on CNN International and one on CNNSI, with intentions to expand further. In addition, the community group handles over 4,000 incoming emails and user feedback per week.

CNN understands the importance of enhancing interactivity, therefore planners at the company have initiated a positioning shift from host based content to interaction based content, as illustrated in Figure 1.

#### **3.4. Suze Orman and Oprah Winfrey Celebrity Networks**

Suze Orman is a minor celebrity in the

United States, as a provider of emotionally based financial advice to an audience (mostly women) that reads her books, watches her on TV, or listens to her radio broadcasts. As an almost natural extension, Suze Orman's company created a website (<http://www.suzeorman.com>).

The site contains news about Suze, including a newsletter, books suggestions, and information about her shows. Almost all information and news in this web site are Suze-focused and are provided by her or her staff. Mail can only be sent to Suze, but not to other community members. Idea exchange in this community is rare. Suze's community model is based on the premise that the host should have control over the information, and that all communication should flow through the host. The purpose of the site is to offer information as well as emotional support, but in hierarchical form. There is only one provider of support. This places this type of Celebrity Network near the lower left corner of the framework in Figure 1. This model is, largely similar to that of CNN, but extends into the emotional realm, while also relying on a small number of staff to sustain the communication.

Suze Orman's community has not performed well. Although Orman's books have been bought by millions, the website remains relatively unused and inactive. Interestingly enough, this is consistent with the finding for another celebrity website, namely that of Oprah Winfrey. Winfrey is a major celebrity in USA, one of the richest entertainers in the world, and with a huge following in America and elsewhere. Winfrey hosts daily TV talk shows, writes books, has her own magazine ("Oprah"), and her own "community". Her website (<http://www.oprahwinfreytalk.com/>) was created to provide information about her and to allow members to ask questions of her. However, while Oprah would address some

of the questions in her show, or would invite people to her show based on their messages to her, there was rare interaction on the celebrity website.

Oprah's team, however, seems to have learnt its lesson, and has initiated a new community (<http://www.oprah.com/>). In this new community, members can share ideas with each other. Now, not only information about Oprah can be found here, but also messages about members. In its discussion forum, members seem to be quite active in sharing their ideas with others. The "Month's Mission" for December 2002, "Health", for instance, collected over 500 messages between December 17, 2002 and January 16, 2002. These are minor numbers compared with other communities, and compared to the size of Winfrey's followers, but are a great improvement over the celebrity centered sites where there may be only few messages in the same period. Apart from the discussion forum, this community also offers facility for members to form the "O Group" where sub-communities can be found according to their interests. With these kinds of new functions, members can exchange the information requested by the others and also share the emotional feelings among them.

Other celebrity networks, such as Rick Springfield's "Rick's Loyal Supporters" (RLS), see the lower right corner in Figure 1, are completely fan-driven and many-to-many in their design. The RLS community, hosted as a Yahoo Group, exchanges hundreds of e-mails per day, on topics related to information and knowledge exchange (e.g., ticket availability, concert schedules), as well as emotional exchange. The community is astonishingly tight, as community members also meet each other at frequent concerts and exchange personal e-mails and chats. This places the RLS in the (seemingly more desirable) position near the lower right

corner of our framework.

### **3.5. ISWorld**

ISWorld is a professional community whose members are mainly professors, researchers and students from educational institutions. This community is well-organized and well divided into different divisions, e.g. teaching and learning, professional activities, ISWorld list digest, etc. Every division has its own responding party. It also has the community's own policies and conditions of use to guide the members in ISWorld. For example, one of its policies states "the ISWorld list should not be used to advertise events, items or services that are marketed to generate profit, without advance written permission of the AIS President". Roles and rules are clearly defined in this community. Members join to ISWorld to share information, such as the latest academic conference to be held and job position available in the university. They not only exchange the information, but also generate some new knowledge arising from the communication and discussion in the community. For example "Archive of Research Information Solicited via ISWorld" contains the summary of collected ideas from members on the discussing topics. This activity can help generate the social capital of the community and encourage on-going communication among the members. (<http://www.isworld.org/isworld/isworldtext.html>)

There are about 2,700 registered members in ISWorld ([http://lyris.isworld.org/lyris.pl?enter=isworld&text\\_mode=0&lang=english](http://lyris.isworld.org/lyris.pl?enter=isworld&text_mode=0&lang=english)). Even though ISWorld members also meet face-to-face, ISWorld is considered as relative loosely integrated because this community does not support relationship building. ISWorld does not permit any commercial messages or off-topic

discussions. It is strict in its focus on information and knowledge exchange and has strong policies on message content, thus not allowing any position shift (Figure 1). In the past, off-topic discussions (e.g., 9/11 attack on the World Trade Center) quickly led to emotional outbursts, which resulted in communication breakdowns.

### 3.6. 50s Club

The 50s club hosted by [www.wallstreet-online.de](http://www.wallstreet-online.de) is a member-driven community whose purpose is to help its members accelerate their path to financial independence, defined by the ability to “retire” at age 50. The club came into existence when on November 29, 1999, Learner6 (Rolf Watzka) posted a first message in a new thread titled “how to become financially independent by earning one Million Marks (US\$500,000) through stock investments before age 50”.

Wallstreet:Online (W:O), the hosting website, had itself only existed since 1998, and had become an active information exchange site in 1999, after its restructuring. W:O was a commercial endeavor, an Internet start-up that apparently saw communities as part of its strategy to build customer base and improve valuation. W:O had created several new forums that would allow community discussion, instead of plain information exchange. Many of W:O’s forums had little identity and were simply a topical collection of threads, such as for overseas investments, gold, penny stocks or such, were posters frequently tried to promote their preferred investment ideas.

Within a few days of his initial posting, Learner 6 received many return messages, and by the end of 1999, the new “club” was initiated. Members started to post about four messages per day at that time, but each

message was usually read about 1,500 times during its “active” lifetime (while the thread is active). The community quickly built up a membership (with membership list and detailed personal information). Members placed significant trust in the community and its champion (Learner6), its lead expert (Dr. Max), and other active individuals (e.g., “Wienerin”, who maintains the community directory).

The community has lasted ever since 1999, despite the stock-market crash, attempts by Dr. Max to “steal” the community and make it the core of an advice-for-pay site (he was expelled thereafter), as well as various internal arguments. The 50s club has also gone from virtual to face-to-face meetings, plans to go on joint vacations, and has built a large community knowledge body on financial investments.

While primarily designed as a knowledge community, it has also addressed emotional needs, and members frequently share information that could be considered off-topic elsewhere. In our framework, the 50s club is positioned at the lower right corner.

### 3.7. Summary

This section has provided several illustrations of community models, their characteristics, and their performance. The examples demonstrate the potential to create large and sustainable communities, but they also suggest that some types of communities are difficult to maintain. Furthermore, the positioning shift of several of these communities suggests that some community structures are more desirable or stable than others. The next section will explore these desirability criteria further and offer corresponding principles of community design.

#### **4. Principles for Developing and Maintaining Successful On-line Communities**

##### **4.1. Principle 1: Many-to-many exchange**

As our analysis shows, there are several developments that shape the growth and transition of virtual communities. First, the hub model (one-to-many) is difficult to sustain when the community grows. Celebrities who tried to maintain their “own” communities found this out, unable to answer all the questions raised, and finally being left with a relatively unattended discussion forum, while the real conversations happened elsewhere. Even large organizations have made similar discoveries, as company websites lose their value as an information exchange forum, while community forums are blossoming and freely exchanging product information, good or bad. This issue has also been raised among the 95 principles of the Cluetrain Manifesto, which describes markets as conversations and proclaims the loss of relevance of traditional organizations in light of the free information exchange on the Internet (Locke, *et al.*, 2001) .

##### **4.2. Principle 2: Strong champion to build the community**

According the first principle, communities need to be built as networks. Still, communities do rely on a strong champion, i.e., the founder to drive their development and encourage others to participate, and who may answer a disproportionately large number of inquiries, or post a large number of posts. For example, one such individual on the 50s Club community posted on average 10 messages per day during the last 2-year period.

The champion, who may also be the community founder, will propel the community through its initial growth phase, where otherwise few other members may take an active role. The champion will likely also take on “administrative” roles such as categorizing or sorting of contributions, managing membership, defining the community purpose, and “policing”, if needed.

##### **4.3. Principle 3: Build around a need and with social capital**

Our examples suggest, as do many others, that simply providing the technology will not result in the creation of communities. Icered.com, which claims to be the largest on-line community in Asia, can hardly be considered a community. The discussions on Icered intertwine some information exchange with significant verbal fights and negative behaviors, which is not the sign of social capital and community values. AOL with its 34 million members is also not a community, as there is no common bond between members, other than their use of the AOL technology.

Functioning communities are built around a need (relationship, information, transaction) or common desire, are able to jointly address the need through their available resources, and have the necessary ICTs in place to carry out their conversations in an on-line interactive environment.

##### **4.4. Principle 4: Provision of rules and regulations**

Rules and regulations are essential to stay the virtual community. Rules and regulations in virtual community are the statements made by the community administrator that tell the community members what is permitted and how they are

expected to behave in the virtual community. The provision of rules and regulations is a way for community administrator to manage the community more effectively, especially for the one exists in cyberspace. It helps the members behave in an acceptable manner and in a way not to lessen others' benefits. Rules and regulations can also serve as the purpose of leading the members to behave for achieving the objectives of the virtual community as a whole.

Upon understanding the importance of rules and regulations in virtual community, it is also required to make these statements explicit. Taking ISWorld as an example, after the temporary shut down of the entire discussion board due to the debate on 911 event, rules had been restated and make it explicit to let every member know what kinds of behaviors are acceptable and what are not. It is important to clearly state the rules. The clear and confined rules can help the members understand how to behave in the virtual community.

Apart from letting members understand the rules, the community administrator must also enforce the rules. If members believe that rules will not be enforced, they will not respect them and not follow them, as is the case at Icered.com (Hong Kong).

Rules and regulations are effective and useful when their guiding principles are widely accepted in the community and when the community administrator has the authority to penalize offending behaviors, e.g., by reducing their rights or by barring them from the community.

The importance of rules is demonstrated for instance by the fact that even religious communities, whose members are expected to behave well, have rules and regulations. The "Christian discussion board" (<http://www.geocities.com/hk5760/>) is an

example.

#### **4.5 Principle 5: Critical mass**

Hiltz and Turoff first proposed the "critical mass hypothesis" in their "sustainable interactive-CMC research" study (Hiltz and Turoff, 1978). They found that groups with less than 8 to 12 active users failed to produce enough new material to maintain their participants' interest and to retain participants. As a result, some of the users of small conferences migrated to other more active and larger conferences. Likewise, Markus emphasized that the widespread use of interactive media can result in a "public good" as long as critical mass is reached (Markus, 1987). Critical mass may imply that there are enough writers to produce new material, but also enough readers so that writers feel their contributions are worthwhile. Community designers need to consider how to maintain a sufficient number of people to make an on-line community viable, attractable, and sustainable.

#### **4.6. Principle 6: Community role and membership life cycle**

Evidence shows that participation in virtual communities is relatively uneven. A small group of individuals will be producing the majority of information, a large group producing little additional input, and the largest group will be likely producing no content at all. In the 50s Club, for instance, every thread of about 50 messages was read typically 1,500 times, indicating a 30:1 read-to-write ratio. Threads took about 14 days until they reached 50 messages (about 4 messages per day generated), while an active member such as Wienerin posts about 2 messages per day (2,539 messages in 1,246 days).

Furthermore, even among those that contribute significant content, there are differences in the type, nature, and quality of content they produce. For example, some may be questioners but rarely answer questions; others may focus their comments on community issues, while others excel in their subject expertise. Our research and some of others identify at the least the following roles. We classify the roles into three general types, functional, neutral/undetermined, and dysfunctional.

### **Functional Roles**

Functional roles refer to the roles that are vital and contribute positively to thriving communities. They include:

#### 1) Thought Leader / Expert

The thought leader role is similar to the expert role defined by Preece and Maloney-Krichmar (2003). A thought leader or expert is best described as a leader who spends extra much effort to make the discussion in a community better. For example, a thought leader read company reports, does all sorts of research and analysis, and is willing to share information and knowledge with others. A thought leader may also act as a teacher or a coach. The former teaches people something, whereas the latter provides guidance and leads somebody to learn.

#### 2) Active Member

An active member is characterized by communicating intensely and frequently in a community. He/she is enthusiastic to post messages and answer questions, and share information and knowledge with the other members. Preece and Maloney-Krichmar (2003) identified active members as people who always try to respond.

#### 3) Administrator

An administrator, one of the best-known roles in on-line communities, monitors the discussion in a community to ensure the participants' discussions and behaviors are not breaching the rules. The administrator might also interpret behaviors and take action to ensure relative civility.

#### 4) "Soul of the Team"

The "soul of the team" can be best described by giving rather than asking something from a community. Such a community member contributes through emotional sharing and empathy. Preece and Maloney-Krichmar (2003) identified this group (in part) as people who befriend others.

### **Neutral/Undetermined Role**

Neutral/undetermined role refers to the role that neither contributes nor makes harm to thriving communities. It includes:

#### 1) Lurker

A lurker is silent participant who only reads but does not send messages (compare Preece and Maloney-Krichmar 2003). A lurker may join a community to draw on the community's knowledge, and to seek for professional advice by reading messages. However, lurker behavior is not automatically negative or "free riding". Most new community members would in fact be expected to lurk first, before starting to actively communicate. The study of lurkers has received much attention because it is estimated that lurkers make up over 90% of the population of online communities (Nonnecke & Preece, 2000).

## Dysfunctional Roles

Dysfunctional roles do not contribute positively to the community's strength and growth. Sometimes, they may even deteriorate the development of community. They include:

### 1) Advertiser

An advertiser joins a community mainly to advertise and promote himself or herself. For example, an advertiser posts messages propagating his/her knowledge on specific topics, and may answer other participants' questions by giving his/her professional advice, but his or her motives are not community oriented.

### 2) Cynic

A cynic mainly aims at making sarcastic comments to others. For instance, a cynic replies to messages by ridiculing others, or criticizing others' messages in an impolite manner. Preece and Maloney-Krichmar (2003) called cynics sarcastic people.

### 3) Troll

A troll joins a community mainly to provoke other community members. This community member takes outrageous positions and frequently pretends to be highly ignorant, thus "trawling" other members' irate responses.

### 4) Manipulator

A manipulator participates in a community with an ulterior motive, somewhat similar to the troll, but a significantly more clever communication pattern. The purpose of a manipulator is to agitate other community members and to demonstrate to the community his or her

superiority over others (Lee, *et al*, 2002).

We understand that each role contributes to different functions that significantly shape the growth and sustainability of an on-line community. Each individual role changes over time, without a particular time sequence and pattern. However, each member's membership life cycle will be characterized by one or more of these roles, frequently in progressive stages of community involvement (Figure 2).

The functional community membership life cycle illustrates four successive stages of community involvement: lurker stage, active stage, leadership stage, and decline stage. We differentiate different roles according to the nature of the roles, either positive or negative contribution. We use one particular instance of time to illustrate the idea. As a new member, a participant usually takes on a lurker role. As time goes by, the participant explores the community, participates more, and knows more about the community. He or she may then decide to become a (more) active member. Depending on the participant's own purpose in joining the community, a lurker might transit to either an active member role or a dysfunctional role such as advertiser, cynic, troll, or manipulator. Entering the leadership stage is a major transition point in the functional membership life cycle. However, participants may also withdraw from the community at any point in their membership life cycle, due to various reasons (e.g., lack of support, lack of time, no more reason to participate). Hence, it is not necessarily the case that the community membership life cycle will evolve at this same sequence all the time.

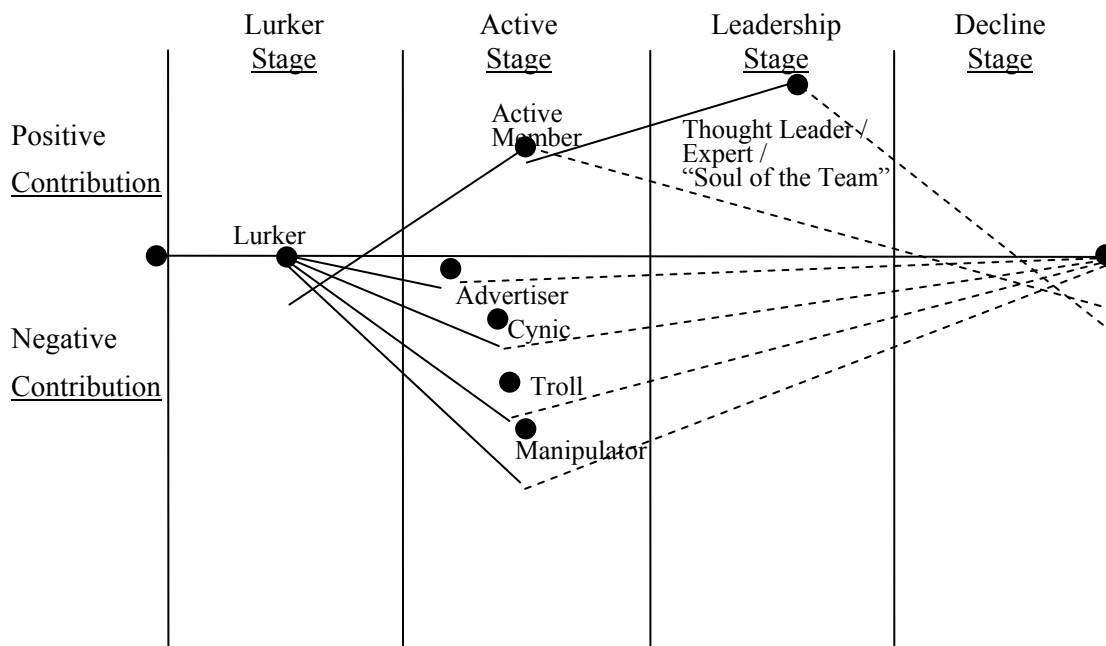


Figure 2: Community Membership Life Cycle

For any on-line community, it is important to have a balanced proportion of different roles because an on-line community with positive social capital and frequent mutual information/knowledge exchange can sustain itself for a longer time. For instance, the “soul of the team” assists in enhancing the positive social capital in a community, while thought leaders and active members help to contribute information and knowledge among community members. An administrator helps enforce rules and regulations, and monitor members’ misbehaviors.

#### 4.7 Principle 7: Community stages of development

A virtual community itself will go through stages of development, following a life cycle. Typical life cycle stages would be initiation, growth, maturity, decline, and dissolution.

However, in many communities maturity or decline may be followed by a

renewal stages of development that are largely tied to the type of community. *Project communities* are community development matches project. The community is dissolved or loses its purpose as the project is completed. Project communities naturally follow a path from initiation to dissolution. Once the project is completed, there is little use to maintain the virtual community in that form. There are many communities of this type, such as learning communities around a particular course, or project management communities for a major event.

There are other communities, similar in nature, which are associated with a *recurring event*. Recurring event communities are identified by decline and renewal, in which the community activity repeats itself and therefore results in repeated renewal stages, although with changing membership and member roles. For example, support communities for sufferers of a disease, or advice communities for projects such as

business start-up will likely lose (a large part) of their original membership once the event is completed. Members will learn as they mature and grow through the event. At decline, they will have to learn just about as much as they want or need, and have little further need to remain in the community in a “learner” role. At that time, many will leave. For those remaining, the future idea exchange will be likely single-sided, as there is little extra (need) to learn, and so discussions will focus more on information dissemination. This is not to imply that individuals only stay in virtual communities if it can satisfy self-interest, however, members will have to recognize a change in role and many may not want to be volunteer to repeatedly dispense the same knowledge to others.

*Topic communities*, with long maturity, are defined by the length of interest that exists in the topic. Topic communities are different from the above two types, as the topical body of knowledge always expands and therefore all members of the community are in a continual “learner” role. While some members may be more expert than others (and may be the major source of new information provided to the community), all will gain new knowledge in the process and will benefit from the learning experience.

## **5. Implementation of the Design Principles**

In this section, we summarize the design principles into a set of basic lessons to provide insight to help community planners design on-line communities.

### **Lesson 1: Adapt many-to-many (N:M) network design**

One-to-many (1:N) or “hub-type” communities require considerable centralized resources especially when the communities

become large. As there is only one provider of support, the burden of workload is high for the provider. Furthermore, there is less social capital in hub-type communities. Community designers need to understand that successful and long-lasting communities almost always adapt a network design to create a more interactive environment. As shown in the cases of Suze Orman and Oprah Winfrey, hub-type communities do not work properly.

### **Lesson 2: Cultivate your champion and develop future champion**

Champions are like locomotives—they welcome new comers, answer questions, and encourage participations. Community planners have to cultivate champions and develop future champion to create successful and sustainable communities. Community builders need to understand that a strong champion also needs support and some resources, but the results can be well worth the investment in the champion.

### **Lesson 3: Need to have a cause**

As the primary reason for people to join a community is that they have a shared goal, interest, or need (Whittaker, Issacs, & O'Day, 1997), we emphasize that simply providing technology cannot ensure creation of successful on-line community. Communities arise for various reasons—some form around a need, while others form around a well-known figure. Community designers need to address what types of communities they want to build, why they have to build them, and whom they are building them for. Most successful and long-lasting communities usually begin small and simple and are focused. It is important to have flexible mechanisms to foster continuity and growth of the communities in response to the changing needs of the members, and the changing

conditions of the communities.

#### **Lesson 4: Develop an explicit and clear governance structure**

Explicit and clear governance structure, such as rules and regulations, norms, and policies is one of the core characteristics of sustainable virtual communities (Whittaker, Issacs, & O'Day, 1997). Each on-line community has its unique internal etiquette. Formulating rules is a good start, making sure they are enforced is an important task. Planners need to understand there is no point to have rules if they are not enforced. More importantly, rules and regulations need to be strict enough to guide community behavior but flexible enough to change as the community evolves. Designers have to understand that too many rules will kill social capital of on-line communities.

#### **Lesson 5: Keep the critical mass of members**

Critical mass is a central concept to explain community success and failure. Planners need to attract and keep a "critical mass" of members so as to create a sense of belonging, intimacy, connection, and camaraderie, as well as to generate enough content. Designers need to quantify critical mass for different types of communities and situations. Community designers need to maintain (or grow) the community size, but also ensure an inflow of new members to enable the community to renew itself.

#### **Lesson 6: Monitor the mix of roles**

Even if on-line communities differ in purpose and architecture, the same basic social roles emerge repeatedly. On-line communities are held together by various social roles, and designers can help flourish the communities by carefully monitoring the mix of roles. Our review on eBay, 50s Club,

and ISWorld indicates that network-type communities demonstrate a potential success not only because many-to-many exchanges among members, but also there are different roles interacting intensively and actively in the communities. Designers have to realize that dynamic characters of community members help attract people to the communities. It is worthwhile to understand thoroughly and know how to source members to fulfill appropriate roles in order to maintain a lively and sustainable community. Especially if the community has a sudden outflow of some specific member types, e.g., experts, designers have to quickly respond to bring them back or "recruit" others.

#### **Lesson 7: Renew, refresh, and refine the community**

On-line communities evolve and go through different stages of development. Designers have to keep pace with the changing needs of the members and the communities, and pay attention to the needs of the members, types of the communities they want to build, and the goals of the communities. With new member interests differing significantly from those of long term members, community designers have to find ways to make the community attractive to all. For instance, there need to be FAQs and archival sites for new members so that they do not continuously bother long term members with "newbie" questions.

## **6. Conclusions**

In this paper, we have reviewed several structural characteristics underlying all virtual communities, together with exploring how these characteristics are represented in different types of communities. We proposed an integrative framework to describe the different combinations of

characteristics of different types of virtual communities. The framework provides planners a useful model to understand on-line organizations. By understanding the different types of on-line groups, and the transition from one group type to another, community developers learn how to undertake corresponding effective steps to create and maintain on-line communities. In addition, we proposed the main design criteria underlying successful on-line communities. Based on the design principles, we have raised a number of lessons for community planners to help them gain richer insights during the community designing and development process.

On-line communities clearly play an important role in economic, information, and emotional exchanges. Some big communities, such as AOL or eBay, can have great social and economical impact. The true power of on-line communities lies in their ability to affect people's physical, emotional, and professional lives in a meaningful way. The more a community accomplishes this, the more successful the community will be. Managing communities also has similarities to virtual organization management. Planners have to address the social and technical issues, examine the interaction between these two factors, and further understand the dynamics of their interaction (Igarria, 1999, Markus, 2000).

Much work can be done in future research. Since the design criteria are based on a review of literature and are exploratory in nature, we need to analyze all of the principles in-depth to test its validity and generalizability. This will allow us to study the phenomenon in detail, and to offer more formal conclusions concerning the phenomenon.

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