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Abstract

Online Communities have been researched for a long time from social, informational as well as economic perspectives. Most approaches up-to-now focussed on the interaction of a number of users with specific communities, are studies about the characteristics of communities in different domains or are general guidelines for the development of these communities. These approaches, however, neglect the aspect that one entire online community is embedded in a landscape of other communities and interrelates with them. In this article we describe this landscape as a market in which a community competes with other communities for online members. We discuss characteristics and forces of this market and present results from a study that monitored 36 online travel communities over a period of several months. Our data indicate that with regards to registered members, there are few very large communities, in contrast to a large number of very small communities. An analysis of the average number of members that are actually online, however, shows that smaller communities (e.g., with a regional scope) are, in principle, able to mobilize a higher degree of their members. We conclude that niche strategies can be successful in this market, and discuss implications for this community landscape.

Keywords: Online Communities, Market, Tourism

1 INTRODUCTION

Online Communities have been researched intensively for the last 25 years (for an overview of research approaches see Gupta & Kim 2004). From a user perspective, research shows that there are two main motivating factors for Internet users to join these communities: social motivation (friendship) and information exchange (Ridings 2004). Social aspects have already been described at an early stage of research, often characterized by a certain surprise that people are able to establish sustainable social relationships in a mere virtual environment. Rheingold (1993), for example, describes the social bonds that developed among members of the online community "The Well" and vividly depicts the empathy within the community (e.g., in case of a sick child of one of the community members). Later approaches have focussed on the relation between this kind of sociability and its implication for the development of online communities (Preece 2000). Thus, the aspect of socialization in virtual environments (and similarities and differences to real world scenarios) has been a starting point for online community research and is still one of its dominant aspects.

The other important motivating factor – information exchange – has repeatedly been discussed in the literature. This approach has explicitly been formulated by Schwabe and Prestipino (2005) and Prestipino (2008) who perceive online communities as information systems. Online communities have the advantage that users can formulate their information needs as natural language questions. Furthermore, an originally fuzzy information need can become more concrete with the help of other community members. In this regard, Prestipino et al. (2006) and Aschoff et al. (2007) have focussed on the information quality that online members can obtain in different communities, and then compared this to the information quality of commercial print products. The interest in the answer quality of newer Q&A sites, as researched by Adamic et al. (2008) and Agichtein et al. (2008), also reflects the great potential that is attributed to these user-driven social answering systems.

These two motivation factors, socialization and information exchange, can be seen as the driving forces from the user perspective. In addition to this, another perspective has gained considerable attention, especially within the IS research literature: the potential of online communities for business purposes (e.g., Hagel & Armstrong 1997, Balasubramian & Mahajan 2001). From the perspective of a company, the establishment of an (online) community can have a number of advantages. In an optimal case it provides a stable group of customers who are deeply bonded with the enterprise, and a brand name that can sustainably be upheld by this active community (e.g., the Harley Davidson community). In addition, active communities can be valuable information sources for a company. They can be used to gain feedback on products or can even fuel the development of new products based on user-driven innovation. Consequently, Hagel and Armstrong recommend communities to improve a company's position in relation to customers, suppliers and competitors.

Most of these approaches focussed on the interaction of a number of users with specific communities, are studies about the characteristics of communities in different domains or are general guidelines for the development of these communities. These approaches, however, neglect the fact that each community can be perceived as a player in a market of competing online communities (for a recent exception see Wang 2007). This perspective might be in contrast to the early description of communities as social exchange spaces for members without any monetary incentive. However, it seems obvious that communities covering the same domain (e.g., tourism) on the Internet are interrelated with each other. It is widely assumed that communities or social networks in general need a certain critical mass level of users to have a sustainable development (Markus 1987). This implies that two tourism communities on the Internet compete for users from the entire population of travel-interested Internet users. As Aschoff and Schwabe (2009) point out, traditional communities (townships, schools, churches) are more fate than choice. Even so these communities partly also engage in a competition (e.g. by giving tax incentives to gain members), one was mainly born into one or the other social environment. This situation is considerably altered by the Internet situation which allows all users to become a member of any arbitrary community of their choice.

2   FORCES IN AN ONLINE COMMUNITY MARKET

As Aschoff and Schwabe (2009) pointed out, online communities are likely to realize considerable network effects (Shapiro & Varian 1998). The value of the network increases when more members join the online community. Markets with strong network effects can lead to winner or loser markets. The individual players either realise a positive feedback loop and grow, or they do not gain enough initial momentum, realize a negative feedback loop and vanish. These considerations lead to question about the characteristics of this online tourism community market.

Aschoff and Schwabe (2009) have presented data about the number and growth levels of registered members for 74 online tourism communities. In their research, the authors showed that the community market was characterized by a power law or long tail distribution. Few exceedingly large communities (with respect to the number of registered members) were accompanied by a large number of communities that are orders of a magnitude smaller than that of the communities in the head of the long tail distribution. Further, the authors indicated that the absolute growth level of these communities was correlated with size. Larger communities grew more quickly than did smaller communities. While large growth levels were found for most big communities this difference disappeared when relative growth levels were calculated. Small communities showed considerable relative growth levels that were on a comparable level to that of large communities. This led to the question of whether smaller communities are likely to vanish or whether they can coexist with large ones. Formulated in a different way, the question remains as to how many communities can coexist in this market of online communities.

Based on the growth levels that were recorded for smaller communities, we hypothesize that the positive network effects that larger communities can realize are not the only force that influences the development of communities. Once the community grows beyond a certain size negative effects emerge as well. The individual community members may have more costs on finding persons with a promising answer in a large heterogeneous group of fellow community members. In a similar way, Jones and Rafaeli (1999) attribute the flattening of the population growth curve to cognitive processing limits that are experienced by users of virtual public places after a certain threshold has been reached. In addition, there are two motivating factors for the participation in online communities that might degrade once the community has reached a certain size: social status and reciprocity. In large heterogeneous groups it can be more difficult to reach a certain level of social status compared to a smaller homogeneous group. Also, if the idea of reciprocity is conceived at an individual level, it is more likely that a community member will interact with the same member again in a smaller community rather than in a larger community.

Aschoff and Schwabe (2009) only presented data on the number of registered members of several online tourism communities. The number of registered members, however, is only a very indirect measure for the activity in these communities. Against this theoretical background and based on the results of Aschoff and Schwabe (2009) we collected additional data (especially the number of members that are actually online) to further describe the characteristics of this online tourism community market. More specifically, we asked:

1) Do the network effects lead to a monopolistic or oligopolistic market for online tourism communities or are niche strategies possible in the long-tail of the community distribution?

2) What enables smaller online tourism communities to persist against the competition of the large communities?

3   METHOD

To answer these research questions we first collected a comprehensive number of online tourism communities. This research was done as a web search and started in February 2008. We only selected

those communities that were classical forum based communities, i.e. communities that realized the typical question/answer structure of a forum (e.g. excluding wiki communities). Furthermore all communities had to deal with travel-related question. Thus, persons had to ask questions about their travel planning or behaviour (e.g. Can anyone recommend nice beach in South Italy to me?). We also selected communities with a certain level of travel-related specialization (e.g. diving, motorcycles). Criteria was that these communities had to have a considerable big section dealing with travel-related issues for these activities. For search engines we used Google, Yahoo, Altavista, Live Search, Mamma as well as the platform Boardreader. Keywords used were: "Travel Forum", "Traveler Forum", "Travel Board", "Independent Traveler Forum", "Independent Traveler" and "vbulletin travel". The described procedure resultet in a sample of 122 travel communities.

To assess the effects of market strategies we created a sample that allowed us to monitor the number of registered members, the number of registered members currently online as well as the number of guests currently online over a period of time. For the number of registered members we collected data from December 23, 2008 to August 16, 2009 and for the number of members and guests currently online we collected data from May 18, 2009 to August 16, 2009. We included only communities that had 80% of valid cases for these measurement periods and had to exclude some that were so severely spammed during the interval that they had hardly any travel-related content anymore. We wanted to have a clear separation between members online and guests online whereas members should be allowed to alter content and guests not. Few communities also allowed guests to alter content and where also excluded from the sample. These criteria resulted in a sample of 36 communities that were monitored during our measuring period four times a day in a six hour interval. The recorded numbers were the numbers published by the communities and were read out automatically.

To analyze the effects of the niche strategy on the community market we defined two dimensions of possible niche behaviour. 1) Regional scope, i.e. a travel community can possibly cover the entire globe as well as operate on a more regional level. We classified our sample into four categories: *Global* for all communities that on principal covered all areas of the globe. *Continental* for communities on specific continents (e.g. Asia). *Country* for communities on specific countries and *Local* for communities that covered regions below the country level. The second category was specialization, i.e. whether communities in addition to being general travel communities were further specialized. This could be a hobby (e.g. surfing) or also a special target group (e.g. low budget travelling). All communities that covered travelling in general were classified as "general" all the others were classified as "specific". These categorizations were based on obvious exclamation by the communities like the titles or obvious descriptions. Thus, we did not consider to which degree the community discourse actually covered these areas.

4 RESULTS

a) Community size

In a first step, we calculated the absolute community size with respect to the regional scope (Figure 1 a, b). On a descriptive level, we can see that the scope correspondents to the size of the community. Global communities tend to be larger and communities with a more specific regional focus tend to be smaller. As shown in Aschoff and Schwabe (2009) the community landscape follows a power law. Few very large communities are accompanied by many small communities. This in combination with the small N for some categories leads to the high variances and the large error bars.
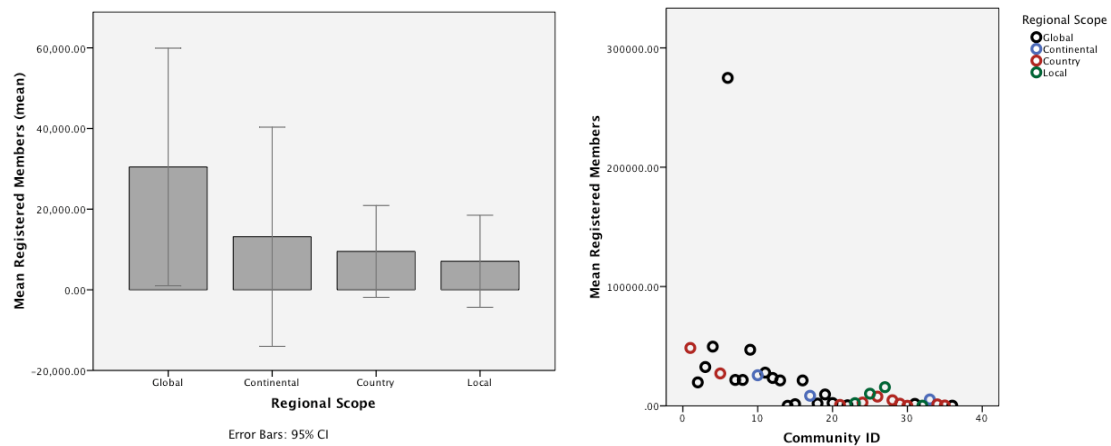
Figure 1 a, b: Mean registered members as well as scatter plot for regional categories (N: Global 19, Continental 2, Country 10, Local 4)

To show the sample more specifically we plotted the community landscape to show the size of the respective categories (Figure 1b). This plot shows that most of the communities with larger size are global communities. The largest community in our sample is a global one and only two country-level communities are among the larger communities. Figure 2 a, b shows the same calculation for the general and the specific communities.
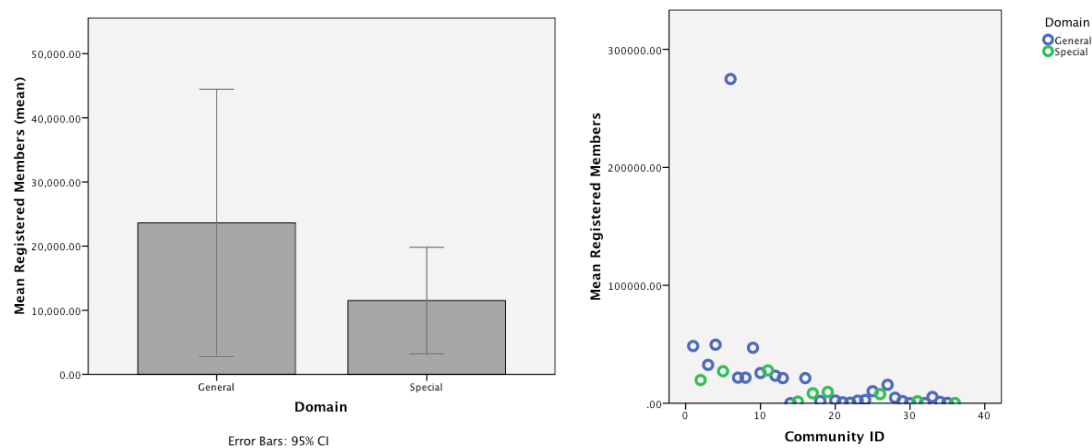

Figure 2 a, b: Mean registered members and scatter plot for the domain focus (N: General 27, special 9)

The categorization in general travel communities and more specialized communities shows similar tendencies. General communities tend to be larger than special communities. The plot shows that the four biggest communities are general communities.

b) Community Growth

We calculated the mean growth curve for the respective categories. These growth curves were calculated by fitting a regression line to the measured number of registered members over time for each community. The reported growth levels correspond to the gradients of these linear models for the respective communities.
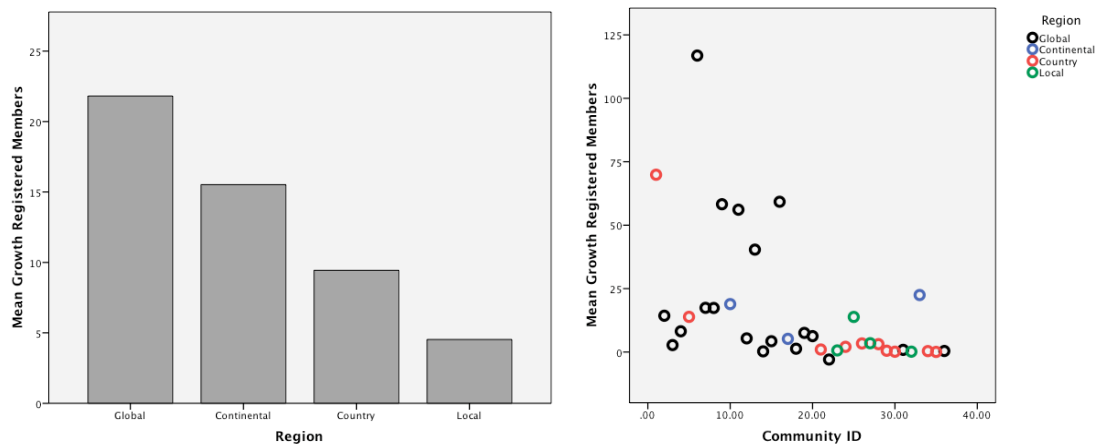
Figure 3 a, b: Mean growth of registered members as well as scatter plot for regional categories (N: Global 19, Continental 2, Country 10, Local 4)

The data show that global communities have a higher growth level. This connection is most likely mediated by the connection between size and growth as reported in Aschoff and Schwabe (2009). Only two country-level communities are among the communities with higher growth rates (Figure 3). Again the categorization into more general and more specific communities shows a similar picture (Figure 4).
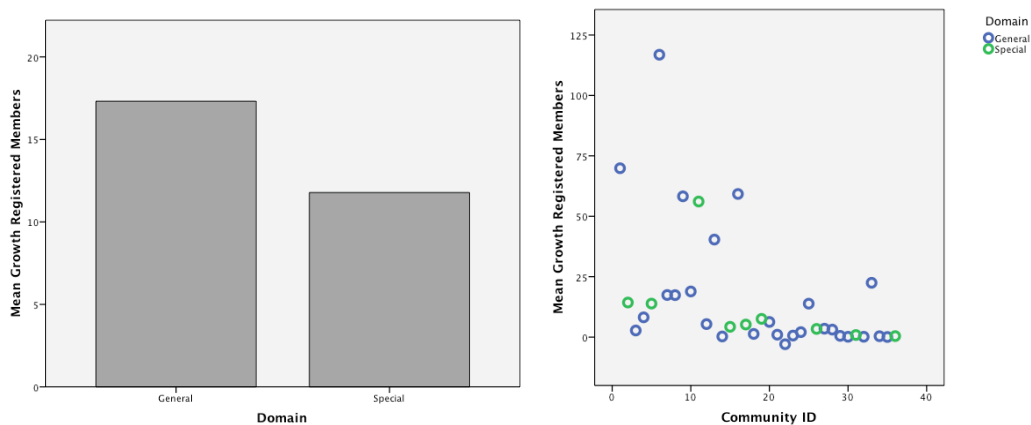

Figure 4 a, b: Mean growth of registered members and scatter plot for the domain focus (N: General 27, special 9)

c) Activity Level (persons online)

We also recorded the persons online separated by members online and guests online. Members online are registered members that are online and that are able to alter content. Guests are all persons that are looking at the page but are not logged in and are not able to ask or answer a question.
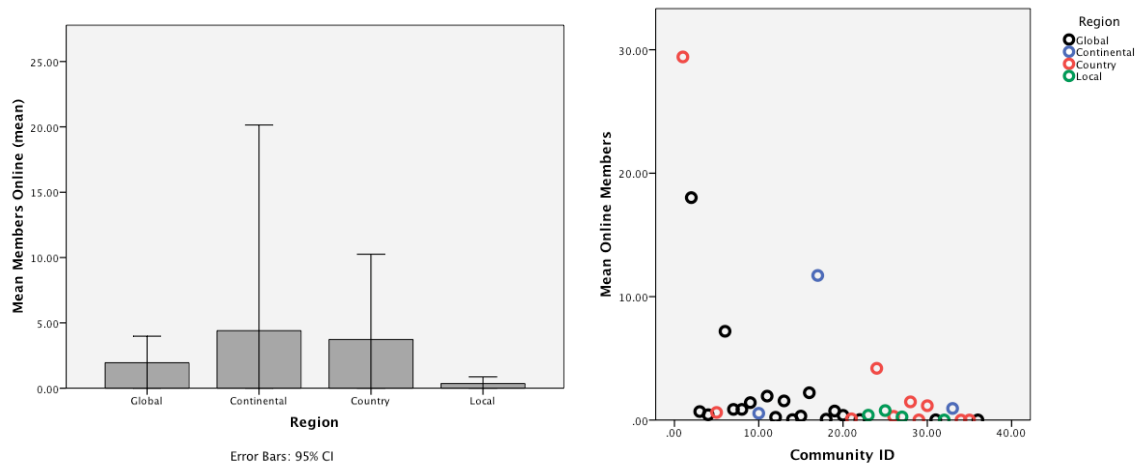
Figure 5 a, b: Mean members online as well as scatter plot for regional categories (N: Global 19, Continental 2, Country 10, Local 4)

We see that here the community with the highest number of members online is not a global community but a country-level community. There are two global communities and one continental community in the middle range. In the lower area there are again three country-level communities with a higher or a comparable activity level as the global communities (Figure 5).

We calculated the respective values for our domain distinction between general and special communities. We see, again, that special communities show higher numbers of persons online than general communities. We see that while the community with the highest level of activity is still a general communities. The two follow-up communities are special communities (Figure 6).
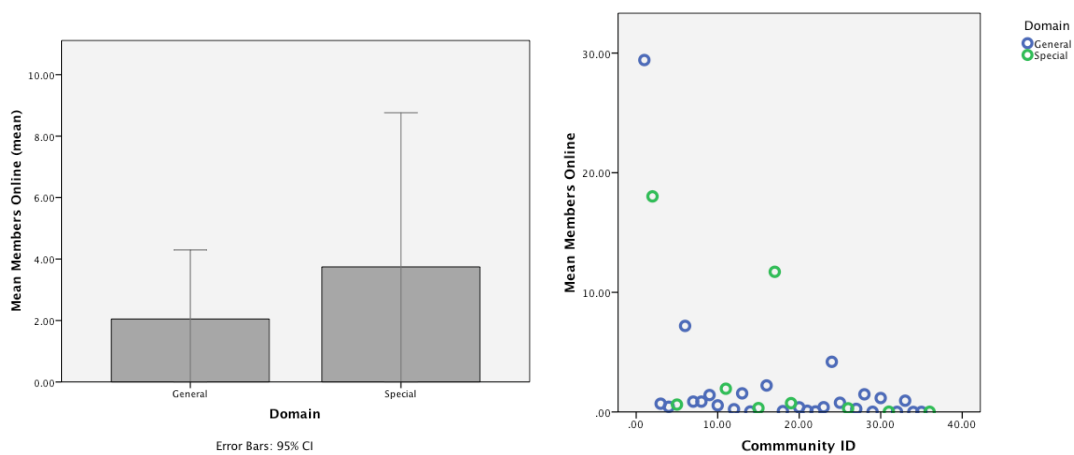

Figure 6 a, b: Mean members online as well as scatter plot for the domain focus (N: General 27, special 9)

In a next step, we combined the regional category with the domain category. Again, we obtained the same distribution schema as observed earlier. The higher descriptive numbers can be observed in the middle categories and the smaller numbers in the outer categories (Figure 7).
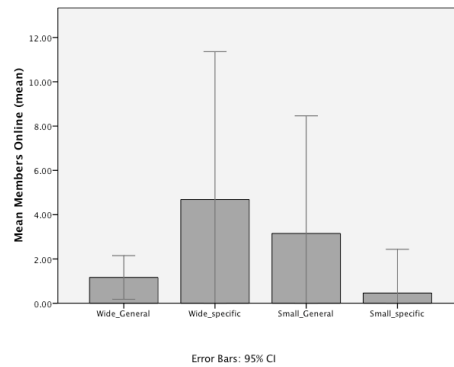
Figure 7: Mean members online (grouped)

In a follow up analysis, we calculated the relative share of members online, i.e., we calculated the percentage of members online for the global category as well as for the country category in relation to the total number of registered members (Figure 8).
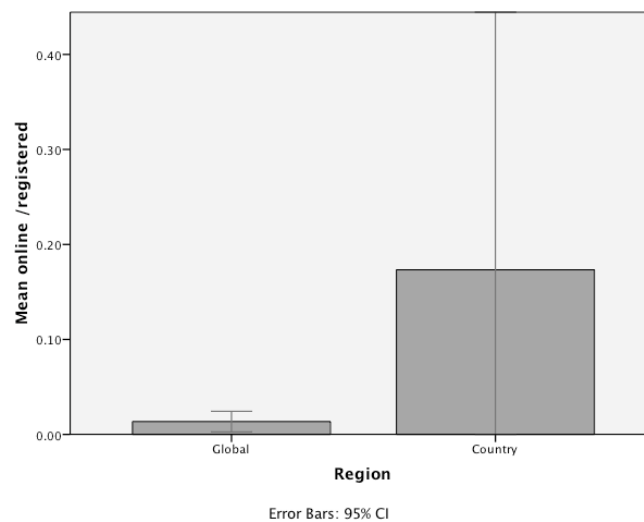

Figure 8: Mean members online divided by registered members

We calculated a t-test for these data which failed to reach significance (one-tailed, equal variances not assumed: $p=0.149$). Thus, we could not systematically show the effect for the entire sample due to the high variance and the size our sample has at the moment. We could show, however, that there are a number of regional communities that have a higher relative number of members online and even some regional communities that have a higher absolute number of members online than the global communities.

Finally, we also categorized which community platforms where used by the different communities. The results followed our expectations: The biggest communities have a self-developed software, medium size communities buy software, and small communities use freely available software. We also collected some data on the "commercialization" of our community sample. We see that most communities are embedded in a kind of commercial structure. They either create some revenue stream by displaying advertisement or are part of a bigger commercial structure where members of the community can also buy travel-related goods or travel books.

Limitations: Many of the described characteristics display a power law, i.e., very few large communities are accompanied by a large number of communities that are by order of magnitude smaller. This leads to high variances for our statistics. Due to this aspect and due the number of communities, we were able to monitor, we were not yet able to show statistical significance for our observations.

5   DISCUSSION

Based on our results we can describe the community landscape as having the following characteristics. Concerning the total number of registered members we see a typical power law or longtail distribution. Few very large communities are accompanied by a large number of communities that are smaller by some orders of magnitude. These large communities – mostly generalized global communities (with self-developed software platforms) – draw a large number of member accounts. Their advantage from the perspective of the members are that a person interested in travelling does not need to change the community if he or she travels to a different country. These large communities probably also realize network effects, i.e. if there are more members the value of these social networks increases. But these large scope communities also have to cover an enormous terrain of knowledge. On principle they offer the service to satisfy every information need, i.e. questions concerning all regions of the globe covering all possible topics (from deep sea diving to low budget holidays with a family). This also means that they have to uphold a large infrastructure, in this case number of members and well structured subcategories, to answer this demand. If the scope increases it might be a mixed blessing for the members of this community: On principle the traveller can ask any questions he or she likes but it can prove to be more difficult to find an adequate answerer in the large heterogeneous group of community members.

This argumentation may shed light on the fact that communities with a smaller scope may have fewer difficulties in mobilizing their registered members to actually participate. Our data indicates that a number of these communities can mobilize a higher relative share of their registered members and that these tendencies can even lead to a comparable absolute higher number of members online. Here again we see a trade-off from the user perspective. If a user chooses to visit a more focused community she knows that she will most likely only get answers concerning the topic offered by the community and no answer to other topics that might also be of interest to her. However, if the community has some activity she also has a higher chance of meeting someone who has knowledge about this specific topic than if she would go into a more general community. For the large communities we probably see larger tendencies of social loafing and diffusion of responsibility. From the perspective of the individual member, the impact of the individual contribution (e.g. an answer to a question) decreases as the community size increases. This can lead to a feeling that the community can well persist without the contribution of the individual member and that there are numerous other people who can answer a posted question.

Regarding our research question we have evidence that the big players (in terms of registered members) do not dominate the market alone. The positive network effects for these large players do not seem to be so strong that they drive all the small players out of the market. Small to medium size communities mobilize a percentage of their registered members that can reach comparable or even higher total numbers than for the global communities. It seems that smaller communities can well persist in this market when they choose a niche and are able to tap into the right pool of persons with common interests. Thus, the advantage of smaller communities that focus on a niche topic can be seen in the *social cohesion* that drives up the user activity. The opposing force, from the user perspective, is the *convenience* of the large global communities. In these communities the user can stay within the same community regardless of his travel destination. Our data does not allow for making precise descriptions for all areas of the scope dimension. Based on the data, however, it seems plausible that the connection between the scope as well as the degree of mobilization is that of a reverse U-function.

Communities with a very large scope have the problem of decreasing *social cohesion* whereas communities with an exceedingly smaller scope burden the member with high switching costs among several communities, i.e. lower *convenience*. A medium scope focus seems to a be good compromise for this trade-off.

Finally, we found that most communities are by now in some kind of commercial environment. Most communities use advertising as a means to generate revenue streams or the communities are bound into a rich socio-commercial structure (often attached to some brand) where members can communicate with one another but are also offered travel-related products such as flight tickets, hotels or travel guides. This may indicate that online communities on the Internet undergo a change towards increasing commercialization. The independent and autonomous virtual communities of the 80s and 90s which were also perceived as an alternative draft to the capitalistic real world seem to evolve more and more into social structures entangled with economic interests.

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