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*Stickiness of Commercial Virtual
Communities*

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Stickiness of Commercial Virtual Communities

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Abstract

The recent merging of the electronic market arena has enabled the creation of new environments in which consumers can interact with each other online – Commercial Virtual Communities (CVC). The strategic question facing internet businesses today is what are the components of the glue that makes consumers stay and return to websites in general and to CVCs in particular, i.e. how can one increase the stickiness of a CVC?

This paper provides an insight into the nature of CVCs and the factors that drive their stickiness. The resulting framework is evaluated with the help of a survey among CVC experts. The results of the survey are presented.

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1. Introduction

The recent merging of the electronic market arena has enabled the creation of new environments in which consumers can interact with each other on-line. These types of new environments threaten to dramatically change pricing and distribution practices. An interesting phenomenon is the merging of electronic communities, which have formed on the Internet. In short, these virtual communities are communities of online users who share similar interests and interact with each other over the Internet (see e.g. [1, 26]). The communities are often founded for commercial purposes, trying to create interesting forums for relatively homogeneous groups of consumers.

Among businesses virtual communities are becoming very popular. The main reason behind their popularity is that people spend a lot of time in these virtual environments. In Internet marketing terms, virtual communities are said to be sticky.

This research was set up to distinguish the factors that contribute to the stickiness of virtual communities, an area to which, according to our literature review, no attention has been given so far. This study offers a description of the characteristics of (commercial) virtual communities, secondly draws up a framework of factors that drive the stickiness of virtual communities and thirdly presents the results of the conducted experience survey to rank the drivers of stickiness as to their importance.

2. Commercial Virtual Communities

Before exploring the drivers of stickiness in commercial virtual communities (CVCs), the concept of virtual communities needs to be defined, which involves the difference between social and commercial virtual communities. Despite the short time that virtual communities have been in existence, they have received relatively a lot of attention from researchers (among others, [5, 19, 26]). This has made it possible to identify the different communities that are present on the Internet.

2.1. *History & Definition of CVCs*

In 1985, Howard Rheingold explored a new form of communities involving mainly private individuals. This community, called the WELL has become the most well known virtual community and a great example to many others who have followed this concept. "The WELL, Whole Earth 'Lectronic' Link, is a computer conferencing system that enables people around the world to carry on public conversations and exchange private electronic mail" [25].

Their goal is to participate in the self-design of a new kind of culture to stimulate community life among people who might not have this ability in the physical world. Factors such as distance or handicap may prevent people from engaging in a local network, but still allow them the opportunity in the virtual space. This non-commercial community is a tool through which social relationships can be built across barriers of space and time. Real life topics, such as parenting are discussed. The purpose is, therefore, not to make money, but to share information and experiences [25].

However, since Hagel and Armstrong published their book [15], a different viewpoint on virtual communities has been developed. The authors argue that virtual communities possess potential value for business, because these communities form a new economy among its users. Besides forming a tool through which people communicate with each other, they can represent a medium for transactions to take place and a source of market intelligence. Communities can become a pool consisting of consumers, which can benefit companies [15].

The perspectives taken by Rheingold [25] and Hagel & Armstrong [15] differ in a very important respect. To explain this difference, both their definitions are given. The one stated by Rheingold:

"Virtual communities are social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace" [25].

Thus, Rheingold considers virtual communities to be a substitute for physical communities without the involvement of businesses that perform transactions. Hagel and Armstrong, however, describe them as follows:

"Virtual communities are online sites with a commercial orientation built around a distinctive focus, which integrate content and communication, and provide access to a broad range of published information and advertisements" [15].

Hagel and Armstrong's definition [15] addresses a special type of virtual community. They focus on commercial virtual communities in the business-to-consumer market, which are more than just social networks of people because these communities include commerce. In their view, people who join such a Commercial Virtual Community (CVC) can be referred to as consumers who obtain the possibility to compare products, prices and experiences. In

addition, by introducing online sales and promotion, these special communities offer immediate business transactions [15]. Especially for these communities the question as to how their stickiness can be improved is highly relevant.

Additionally, some researchers have characterized CVCs by stating that they are structured around a specific topic [19, 24]. Kozinets [19] has defined them as:

"Affiliate groups whose online interactions are based upon shared enthusiasm for, and knowledge of, a specific consumption activity or related group of activities" [19, p.254].

This subgroup is especially interesting for marketers, because it has a clear membership profile and forms a focused target group. The community members are people who are interested in the topic, or seek social contacts with people of the same interests [19]. Hence, they form a very specific consumer group.

Within this research, Commercial Virtual Communities will be defined as following:

Commercial Virtual Communities are affiliate groups of people emerging on the Internet having a distinctive focus with a commercial orientation, which have a specific membership focus and provide content to its participants.

3. Stickiness

Within academic literature, several authors have defined the concept stickiness. Some examples of definitions are:

“Stickiness refers to a company’s ability to retain users and drive them further into a site” [2, p.23],

“Stickiness is a term used to describe a site's ability to attract and retain visitors “ [10, p.58],

“Stickiness (longer, more frequent visits) is clearly based on providing unique content and specialized services to vertical market niches” [7, p.40].

“Stickiness: positive characteristics of a web site that maximizes duration, frequency and depth of a user's visit. Stickiness drives loyalty. Loyalty drives success” [13 ,p.5].

When comparing these various definitions, two aspects appear to be most important: The duration and frequency of a user's visit. A site is considered sticky when a user often visits a site or for a long time.

Of the definitions mentioned above, two also stress that stickiness drives a visitor deeper into a site. However, this is not a defining aspect of stickiness. Stickiness is about increasing the time a visitor spends on a site within a specific time-period. Increasing the depth of a user's visit is only a means of achieving this.

Taking the previous discussion in mind, Davenport's [10] definition of stickiness will be used in this research:

“Stickiness is a term used to describe a site's ability to attract and retain visitors” [10, p.58].

Thus, stickiness is the extend that a web site results in increased duration of a user's visit and increased frequency of user's revisits. Consequently, the drivers of stickiness are the components of a site that result in increased duration or frequency of user's revisits. These drivers will be discussed next.

3.1. Drivers of Stickiness

“When spiders spin their webs they do so in special places where they anticipate that they will be visited by many flies. They position themselves there carefully, spin sticky strands in such a way that visiting flies will be attracted and get stuck” [22].

This is a useful metaphor to describe what CVCs attempt to do. Just as a spider carefully places its glue to catch the insects that passes its way, the CVC attempts to attract, capture and keep passers-by with some sort of glue. Attracting customers is rather straightforward. Sufficient funds and a well-planned advertising and promotion campaign, enable companies to convince consumers to visit their site [14]. The strategic question facing Internet businesses today is what are the components of the glue that make them stay and return.

The objective of this chapter is to give an overview of these components, also called the drivers of stickiness. Drivers of stickiness are the components of a CVC that add stickiness to the CVC. In congruence with the definition of stickiness, as defined in the previous chapter, the drivers of stickiness extend a user's stay at a web-site and/or extend the frequency of a user's revisits. It is important to note that this chapter not only lists the drivers that are important to consider for CVCs, but that these drivers can also add stickiness to other

types of business models on the Internet. Consequently, some of the literature or examples cited do not refer to CVCs but to simple websites. A thorough literature review identified several drivers of stickiness, which we classified into 6 groups: type of content, dimension of content, sources of information, auxiliary drivers, community drivers, and sticky needs. These dimensions are discussed in detail in the following sections. Table 6 provides an overview of all drivers of stickiness grouped into the 6 dimensions.

3.1.1. Sticky types of content

The analysis of the characteristics of Commercial Virtual Communities has revealed the types of content that users can find in a CVC. This section discusses the types of content that add stickiness. The following four types are mentioned: E-mail, storage of personal information, entertainment and community. They are summarized at the end of this section in table 1.

3.1.1.1. E-mail

One of the stickiest types of content is most probably e-mail. In this research, e-mail qualifies for content, as for a large extent it contains information that is sent by others. One reason why e-mail is sticky is that it is extremely popular among Internet users. According to recent research, the first action that 70% of the Internet users take after they are logged onto the Internet is to check their e-mail accounts [14]. A second reason why it is sticky is that its switching costs are high. It turns out in practice that once people have chosen an e-mail account at a CVC or elsewhere they do not easily switch [14].

3.1.1.2. Storage space

Storage space for personal information also has a positive effect on stickiness [3]. Examples of applications where users can store personal information are amongst others: stock portfolios, schedule planners, calendars, address-books and bookmarks. These applications are sticky, because they contain information that users need to access on a frequent basis. Though storage space can also be considered a tool, it is qualified as content in this research, because of the large amount of information it contains.

It can be argued that these applications might turn out to become even stickier in the future when wire-less Internet becomes accessible for the consumer market. Nowadays electronic information is mostly only accessible from specific locations, such as from the office or from home. When people are not at these locations, they need to refer to information on paper. When wireless Internet becomes readily available to the public, electronic

information can be accessed at any location, making these applications more attractive and sticky.

3.1.1.3. Information

“Information is the most important factor why people return often and stay longer on a site” [8 p.2]. According to Coffin, people don’t visit a site regularly because it has e-mail, chat or other features, but people are online to learn more about the topics they care about. People go frequently to their favourite sites and stay longer on those sites, because these sites have information that matters to them [8].

3.1.1.4. Entertainment

Entertainment also extends the time of a user’s visit considerably. The portal Lycos, for example, has a gaming area where visitors can play all sorts of games and quizzes. The average session length in this gaming area is four times the site’s average of 7 minutes per user [14]. Entertainment is also an important part of content of CVCs such as the Fool [13].

3.1.1.5. Community

Community areas, such as bulletin boards, guest-books and chat-platforms also add stickiness to a CVC. These platforms affect stickiness in two ways. First of all, they increase the length of user’s visit because of the additional time users need to spend to use these platforms. Second, they encourage loyalty. People develop relationships on these platforms and become attached to others in the virtual environment. The result is an increased loyalty to the site, via the loyalty to the community [14, 15].

3.1.1.6. Commercial Services

The last type of content one can find in CVCs is obviously of commercial nature. Although we did not find commercial services mentioned in the literature, we are still adding it here for completeness sake.

Table 1: Sticky type of content

Type of Content	Brief Explanation
E-mail	Free e-mail services for users
Storage of Information	Users can store personal info such as bookmarks, addresses, favorite articles
Information	e.g. articles, news, etc.
Entertainment	e.g. games, quizzes, etc.
Community	Platform where users chat and discuss,

	e.g. chat, bulletin boards, guest books
Commercial Services	Services with a commercial character offered to community members, e.g. online shopping

3.1.2. Sticky dimensions of content

Not only the types of content, but also the different dimensions of content have an effect on stickiness. Three dimensions are discussed in this section, which are depth, breadth and frequent updates. These dimensions are presented in table 2.

3.1.2.1. Depth of content

Depth of content relates positively to the stickiness of a web-site. The greater the vertical integration of functional content, the more sticky the web-site is for users. [8, 14, 15]. One way of creating depth is providing detailed information. The Fool is an excellent example of a CVC that offers their users depth. The Fool offers investors a variety of information about companies listed on the stock exchange. Besides, stock quotes, they also offer financial figures, company analysis or company details [13].

Another way of creating depth is to give members the ability to triangulate from several sources of information. According to Hagel and Armstrong [15] CVCs that offer their users information from competing publishers, provide member-generated content and offer content from experts and celebrities, are more sticky than CVC that solely depend on editorial content. The broader the range of resources available, the more detailed a site becomes, the better users are informed, the stickier a site becomes [15].

3.1.2.2. Breadth of content

Breadth of content also has a positive effect on stickiness [10]. The broader the line-up of online services the longer users stay at a CVC. They stay there longer, because they have more options to choose from. Online financial service providers, for example, have found that their sites become stickier, the broader their offerings are. If the same site offers banking, brokerage and insurance, users tend to stay longer than if only one service is offered [12].

3.1.2.3. Frequent updates

Finally, frequent updates improve the duration and frequency of a user's visit [6]. When updates are frequent, users have to visit more often to stay informed. The Telegraaf, a Dutch media company, has realized this. Similar to their physical newspaper, they used to

publish a new version of their on-line paper every morning. Recently, they have changed the procedure. Currently, the site is updated whenever there is news available [29].

Table 2: Dimensions of content

Dimensions	Brief Explanation
Breadth	A wide range of content available
Depth	Detailed content
Frequent updates	Content is updated frequently

3.1.3. Sticky sources of information

The use of a variety of sources make a site sticky. Some sources, however, are more valuable for users than others. This section argues that members, experts and celebrities are the stickiest sources. In the same fashion as in the previous section the drivers are summarized in table 3.

3.1.3.1. Member-generated content

Hagel and Armstrong [15] claim that member-generated content is most sticky. Member-generated content is the information consumers produce in bulletin boards, guest-books or chat sessions. This content is sticky, because the community members see it as more reliable. Take a community about travelling. If a user has to choose between an editorial piece or piece generated by other members about a certain travel destination, he or she would most value the latter.

3.1.3.2. Celebrities and experts

In addition to members the importance of celebrities and experts should not be forgotten [15]. At Parentsoup users can ask for advice during daily chat sessions with doctors. These doctors also publish articles about issue that concern women with children. The Fool makes also make use of celebrities. At The Fool members can read articles from famous investors such as Warren Buffet.

3.1.3.3. Editor

In addition to these sources of information mentioned in the literature, the editor of a CVC could also be a source of information. Thus, the editor was added here to for completeness sake.

Table 3: Sources of information

Sources of information	Brief explanation
Member-generated	Articles written by members of a CVC
Experts	Articles from experts
Celebrities	Information from celebrities
Editor	Information generated by the editor of the CVC

3.1.4. Auxiliary drivers of stickiness

So far, the discussion has focused on the content of a CVC. It was discussed which type of content, dimension of content and sources of content extends a user's visit and/or increases a user's revisit. This section deals with auxiliary drivers of stickiness. Auxiliary drivers are defined as drivers that are not directly linked to content itself but add stickiness to a CVC. In total eight drivers are discussed, which are privacy, incentive schemes, online special events, brand loyalty, personalization, reminders and navigation. The drivers are summarized in table 4

3.1.4.1. Privacy

According to Billante et al. [3] and Brenner [6], respecting the privacy of users has a positive effect on stickiness. When privacy is respected, users stay loyal to the site. Loyalty is based on trust between the user and the web-site owner. When an owner violates a user's trust he or she risks losing his or her users. The Federal Trade Commission took Geocities, a large CVC, to court in 1998 in the United States, after its members discovered that Geocities was selling information about them to third parties without notifying their users. Geocities decided to settle the privacy case after the company started to lose users [30].

To avoid such problems, companies should make clear to their users what will happen with their personal information and give users the tools to decide for themselves how much information they are willing to give away. Companies already have taken measures in this direction. The CVC The Fool provides tools to their users to indicate whether the company is allowed to use their personal information or not. They have also introduced a privacy label on their site to show that they respect the privacy of their users [13].

3.1.4.2. Incentives schemes

Incentive schemes are sticky when they reward users for longer and frequent visits [14]. Several incentive schemes are already in use on the Internet. For instance, www.webmiles.de seeks to build customer loyalty through a points system. Points are rewarded to customers for reading commercial e-mails, clicking on banner ads and spending

money at the systems shopping partners. The points customers accumulate can be used to buy books or CDs [31].

3.1.4.3. Online special events

Hagel and Armstrong [15] argue that sites should organize online special events. The idea about organizing events is to make people curious, so that they return frequently to see if something new is going on. The authors mention several possible events. It can be chat sessions with experts or personalities known to the members. But also contests or challenges can be organized [15].

3.1.4.4. Brand Loyalty

According to Maas [21], an established brand name has a significant impact on stickiness. People visit and return to those sites they are familiar with. Maas (2000) bases his arguments on current Internet traffic data. In The Netherlands, for example, the most visited sites are related to well-known off-line brands, e.g. Libelle, TMF and the Telegraaf [21].

3.1.4.5. Personalization

Tailoring content to the individual user is another way of creating stickiness. Personalization attracts more people and keeps them on the web site for longer [16]. It is the way to create customer loyalty and generate repeat visits to a web site [15, 20].

The web-site of American Airlines is a good example of how personalization can create a loyal customer base. On its site users have the tools to tailor their specific wishes. They can, for example, specify the cities they often fly to and the holiday destinations and activities they prefer. Whenever a user visits this site, he or she then only receives information about these specified cities and destinations. The introduction of personalization tools was a success for American Airlines. Once personalization tools were introduced, member registration tripled and revenues doubled [9].

3.1.4.6. Reminders

Reminders are e-mails send to the users [28]. These e-mails contain news headlines or information about new services that are available. They are sent to a user to get his attention and to bring him to the site. When used well, reminders improve the frequency of a user's revisits [28].

3.1.4.7. Navigation

Hoffman and Novak [17] add a different perspective to stickiness. Their work is based on research about consumer behavior in computer-mediated environments (CME). CMEs are environments that can only be accessed by using computers, e.g. computer games or Internet. They claim that the structure of a site is the key to stickiness.

According to Hoffman and Novak [17], people in CMEs can reach a state-of-mind in which they experience a control over their own interactions, are fully aware of these interactions, and experience them as pleasant. Hoffman and Novak call this state-of-mind “flow”. When people experience flow, irrelevant thoughts are filtered and people are taken up with the interaction with the system. As a result people lose track of time and, consequently, the duration of their visit is extended [17].

There are three important conditions to flow. First, the skills of the users need to match the challenges a site offers. Second, these skills and challenges need to be on a certain level. Third, people need to be focused. On the Internet, the first condition is most often met. The second and third conditions are therefore of greater importance. When these conditions are not met, when the challenges exceed the skills or vice versa, people get bored, lose attention and move to other web-sites.

In order to stimulate flow, Hoffman and Novak stress the importance of a multi-level interface. A multi-level interface is an interface that challenges a user to nose around in a community. In the interface information is presented in such a way that users have a tendency to constantly click to a following or related article. The interface also provides different tools to navigate a site. The tools could be straightforward tools such as backward and forward buttons, but also complicated search tools to find specific information that is published on a site.

Table 3: Auxiliary drivers of stickiness

Drivers	Brief Explanation
Privacy	Statement to protect and respect privacy of user
Brand name	VC has a brandname, e.g. TMF, Telegraaf.
Incentive Schemes	e.g. bonus points
Personalization	Content of VC is tailored to individual preferences
Online special events	VC organizes special events, e.g. chat sessions with celebrities, competitions
Reminders	E-mails send to the user with latest news
Multi-level Interface	Interface is constructed in such a way, that it encourages “nosing around” and offers

	tools for both new and experienced users to do so.
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3.1.5. Community drivers

Earlier we argued that a community area is an important driver of stickiness. People develop relationships through these platforms and become attached to others in the virtual environment. The result is an increased loyalty to the site, via the loyalty to the community [14, 15].

However, just providing a community area does not mean relationships arise. Building relationships is a lengthy and sensitive process [15]. This section discusses the aspects that are important to take into account, when building a community: community drivers.

3.1.5.1. Virtual Identity

The first aspect to consider is virtual identity. To establish a relationship on the Internet, it is important that the users are able to identify each other. If people do not have identities, no relationships can evolve [4, 25]. In this sense a CVC reflects the real world. If you don't know who your neighbor is, you cannot become close friends.

3.1.5.2. Social control

The second aspect, social control, is related to the previous one. Users in a community need to feel safe in a CVC. Social control can provide a safe environment. Social control involves removing abusive language, discrimination and unsolicited commercial messages [18].

3.1.5.3. Off-line events

Thirdly, organizing off-line events can have a positive effect on the community. Although people have access to several means of communication in a CVC and are able to get to know each other very well over these means, they still want to meet face-to-face [23]. Off-line events can give a higher dimension to the already established relationships.

3.1.5.4. Motivation

The fourth aspect to consider is motivation. Motivation can give an enormous boost to the interaction that is taken place on a communication platform [15]. A motivation tool would be name recognition. Through name recognition users are accredited for their contributions by

attaching their name to the contribution or by listing their names in rankings of top contributions of the week.

3.1.5.5. User-friendliness

User-friendliness is the fifth aspect to take into account. It involves clear procedures, tools that are easy to use and pages that load quickly [6].

3.1.5.6. Multiple tools for interaction

The sixth and last aspect mentioned in the literature is the use of multiple tools of interaction [6]. Tools to consider are chat rooms, bulletin boards, guest-books and e-mail [19].

Table 4: Community drivers

Factors	Brief Explanation
Virtual Identity	Users should have an identity in the VC, that is permanently accessible for other users.
Off-line Events	Events outside the virtual world, where users meet.
Motivation	Interaction and relationship-building needs to be motivated by both the community organizer and the users.
User-friendliness	Tools for interaction are easy to use.
Multiple Tools for Interaction	Multiple tools available for users to interact, e.g. chat, bulletin boards, guest-books etc.
Social control	The community organizer and active users make sure that there is no abuse, discrimination etc.

3.1.6. Sticky Needs

A CVC becomes sticky to a user when it addresses certain basic needs of individuals. The reasoning in this section is based on the Media System Dependency (MSD) theory [11]. This theory explains why individuals choose to use media in general and certain media channels in particular.

MSD theory argues that dependency relationships exist between individuals and media channels. People have certain basic needs and are depended on the media channel to address them. Dependency exists because media controls most of our sources of information [11]. A CVC can be considered a media channel. Similar to TV, Radio and the newspaper, it also provides its users/readers with a broad range of information. So, relating this to stickiness, if a

CVC is able to address the basic needs of an individual, it becomes sticky to that particular person.

De Fleur and Ball-Rokeach [11] present a categorization of the most present and general needs individuals have. These needs are understanding, orientation and play. The needs both relate to the individual himself and to his environment (social). Table 5 shows this categorization.

Table 5: Categorization of needs

	Understanding	Orientation	Play
S e l f	Self-understanding e.g. learning about oneself and growing as a person	Action orientation e.g., deciding what to buy, or how to dress	Solitary play e.g. relaxing when alone
S o c i a l	Social understanding e.g. knowing about and interpreting the world or community	Interaction orientation e.g. getting hints on how to handle new or difficult situations	Social play e.g., going to a movie or chatting on the Internet

Source: [11, p.306]

The left column of the table concerns understanding. Understanding is about acquiring social knowledge. MSD theory distinguishes between self and social understanding:

Self-understanding aims at the individual, who wants to understand and develop. Each person wants to learn about himself and grow as person. Media are used to interpret own ideas, behaviour, self-impressions and personality.

Social understanding has to do with the need of people to explore the world around them. Media are used to understand the people, cultures and events around them.

The middle column refers to needs related to orientation. Individuals use media for orientation, i.e. to find information about how to behave. The MSD theory makes a distinction between two behavioural dimensions: behaviour towards oneself and behaviour towards others (social).

Action orientation: individuals look around to make decisions about their own behaviour. Media is used as a guide for their own specific behaviour. This behaviour can be about daily life, but also about politics, economy, what to buy and how to dress.

Interaction orientation: People want to know how to behave towards others. Media is used to gather information that is effective and desirable when dealing with relationships. These relationships can be personal, social or business-related.

Play is about entertainment. People have a need to escape from problems or to simply fill time. MSD distinguishes between self-entertainment and entertainment with others.

5) *Solitary play:* here it concerns the relaxing effect that media content can have. Media content can be amusing and stimulating to the individual. “Play” comes from the media content itself; no other persons are involved.

6) *Social play:* this has to do with the possibilities media offer to stimulate play with others. Here one can think of going to the movie with people or chatting with someone on the Internet.

Summarizing, users are dependent on media to satisfy certain needs. The dependency stems from the fact that media controls most of our sources of information. A CVC is an example of a media channel. When a CVC addresses the needs of orientation, understanding or play, this CVC becomes sticky to the users.

3.2. Summary

The goal of this chapter was to provide the factors that add stickiness to a CVC. Therefore, it has described drivers related to the type of content, dimensions of content, sources of information, auxiliary drivers, community drivers and sticky needs. Table 6 gives an overview of these drivers.

Table 6: Overview of the drivers of stickiness

Type of Content	Dimensions of Content	Sources of information
E-mail	Breadth	Member-generated
Storage of Information	Depth	Experts
Information	Frequent updates	Celebrities
Entertainment		Editor
Community		
Commercial Services		
Auxiliary Drivers	Community Drivers	Sticky Needs
Privacy	Virtual Identity	Self understanding
Brand name	Off-line Events	Social understanding
Incentive Schemes	Motivation	Action orientation
Personalization	User-friendliness	Interaction orientation
Online special events	Multiple Tools	Solitary play
Reminders	Social control	Social play
Multi-level Interface		

4. Research Methodology

4.1. Population & Sample

The purpose of this research is to determine which drivers of stickiness are most important to consider. Since the research is based on an experience survey, the target population of the survey is the group of companies in The Netherlands that work with CVCs. These are companies that either have introduced CVCs in the market or have consulted in the field of CVCs. However, since this concerns a diverse group of companies, this research makes a distinction between four sub-populations: (1) Media companies (i.e. companies that produce content for TV, Radio, Internet and/or printed media), (2) Web designers (companies that have the design of web-sites as their core business), (3) Portals (companies that manage portals), (4) Community organizers (companies with CVCs as their core business). Sourcing from Internet search engines, portal sites and newspapers, a total of thirty-four companies were identified out of these sub-populations.

4.2. Data Collection Method

Within each of the selected companies, one employee responsible for CVCs was contacted by phone. These persons were asked about their experience with CVCs. They were asked to participate in the survey if they declared that they had worked on commercial aspects of CVCs. All 34 companies agreed to participate in the survey.

The participants were then given the option to receive a paper questionnaire by mail or a digital questionnaire via e-mail. The participants were given this choice in order to increase the response rate on the questionnaire. After pilot testing the questionnaire, a total of 20 e-mail and 14 paper-and pencils questionnaires were sent out. The questionnaire consists of three separate sections. First the purpose of the research is explained. This is followed by a short section on the background and experience of the respondents. Finally, the respondents were asked to rank the drivers of stickiness on their degree of importance for influencing the stickiness of a CVC. The drivers were ranked within each block.

5. Results

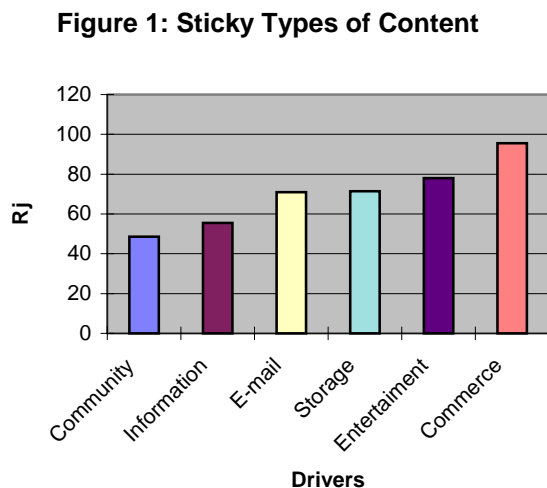
The set-up of the experience survey was designed to determine which of the drivers of stickiness outlined above are most important to consider. This section presents the findings of the research in which both the sample characteristics and the results of the rankings of the drivers of stickiness are discussed.

5.1. Sample Characteristics

Of the 14 mail questionnaires 7 were returned within one and a half week (response rate of 50 %). Of the 20 questionnaires send by e-mail 13 were returned within one and a half week, which is a response rate of 65%. Therefore, the average overall response rate, from both the e-mail and paper-and-pencil surveys is 59%. Of the seven selected community organizers all returned their questionnaire. Five out of ten portals, five out of seven media companies and three out of ten web design companies returned their questionnaire The typical respondent is either a general manager or a marketing manager, with a business study as their educational background. Since the average experience with the commercial aspects of CVCs of the respondents is 2 years, the respondents can be called experienced in this field.

5.2. Ranking of drivers of stickiness

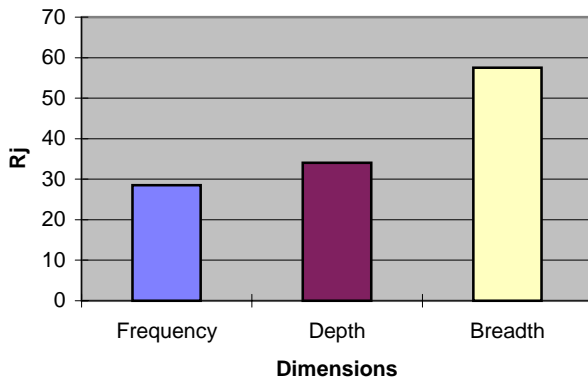
To test the reliability of the results attained from the experts, Kendall's coefficient of Concordance (W) is used, which expresses the degree of agreement among (N) experts in ranking (k) variables [27]. The larger W is, the greater the agreement among the experts. The limits of W are zero with no agreement and one with perfect agreement among the ranks.



The first section of the results of the rankings of the drivers of stickiness concerns the ranking on type of content (Information, Community, E-mail, Storage of Information and Entertainment). The experts were asked to rank these drivers on their degree of stickiness. For type of content, testing the agreement among the experts resulted in a W of 0.225, which is significant at $\alpha=5\%$. This means that there is agreement among the experts about the ranking of the types of content. Experts perceive the community area as most sticky, closely followed by information, e-mail, storage space, entertainment and finally commercial services. These results are shown in figure 1.

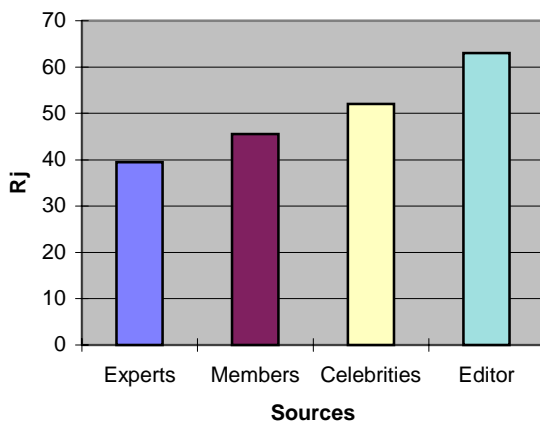
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Figure 2: Sticky Dimensions



Similarly, the dimensions of content were ranked (breadth, depth and frequent updates). Kendall's Coefficient of Concordance for dimensions of content is 0.624 which again is significant at $\alpha=5\%$. Figure 2 shows that experts consider frequent updates most sticky, followed by depth and finally breadth of content.

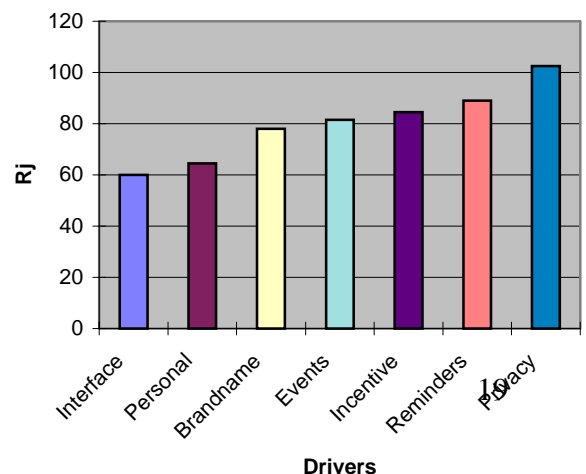
Figure 3: Sticky Sources



The third ranking concerns the sources of information (members, experts and celebrities). Kendall's coefficient of concordance was computed at 0.164 (significant at $\alpha=5\%$). Figure 3 displays the results that were given by the respondents, from which one can conclude that experts are considered the most sticky source of information. Members, celebrities and finally editorial content conclude the ranking on sticky sources of content.

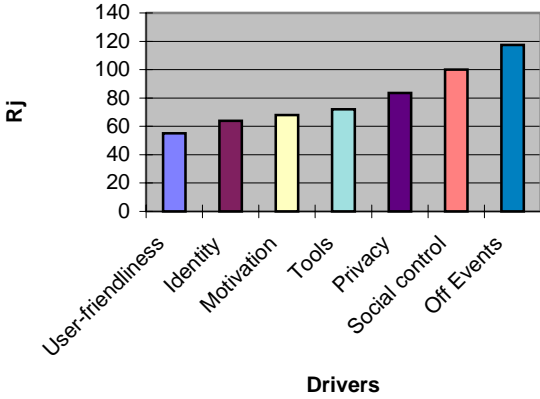
The fourth ranking concerns auxiliary drivers. The seven auxiliary drivers that were outlined are: privacy, brand name, incentives schemes, personalization, online special events, reminders and a multi-level interface. A W of 0.138 was calculated which is significant at $\alpha=5\%$. The drivers are ranked according to the

Figure 4: Auxiliary Drivers



following scheme: a multi-level interface is considered most sticky, followed by personalization, brand name, online events, incentive schemes, reminders and finally privacy. These results are displayed in figure 4.

Figure 5: Community Drivers

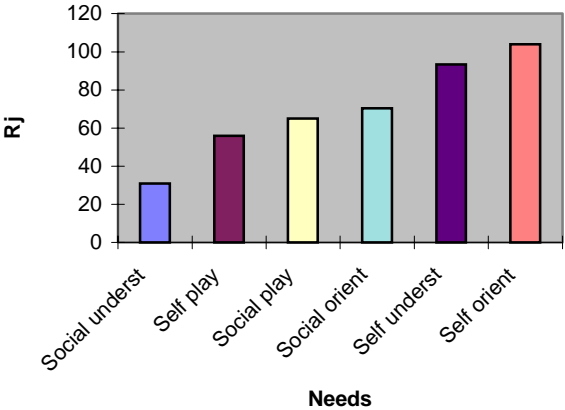


The fifth ranking addresses the community drivers. Community drivers are factors needed be taken into account when building a community: virtual identity, off-line events, motivation, user-friendliness, multiple tools of interaction and social control. Though privacy was mentioned as an auxiliary driver, it was also included in this ranking, as it is assumed that it is especially important in the community area. Again the W of 0.267 was found to be significant at a 5 % significance

level. Figure 5 shows that user-friendliness is considered most important when creating a community. A virtual identity is the next issue to take into account, followed by motivation and multiple tools of interaction. Privacy and social control are less important according to the experts. Least important of all the community drivers are off-line events.

The sixth ranking concerns the needs community organizers have to address to make a CVC sticky: self orientation and social orientation, self play and social play and self understanding and social understanding. A W of 0.497 (significant at $\alpha=5\%$) again indicates agreement among the experts. Figure 6 displays the order of each of the factors. According to the experts users mainly visit a CVC for social understanding. Self-play is the second most important reason. Apparently, the experts believe the social aspects of a CVC are more important, as social play and social orientation are ranked third and fourth, respectively and self understanding and self orientation are ranked fifth and sixth, respectively.

Figure 6: Sticky Needs



6. Conclusion

This research report covers the most important factors that contribute to the stickiness of a Commercial Virtual Community (CVC). In order to answer this extensive research question a literature and experience survey is conducted. The literature research is twofold: (1) it defines the concepts of Commercial Virtual Communities, including its distinctive characteristics, and (2) it addresses the drivers of stickiness that were mentioned by various other authors. The second aspect of this research covered an expert survey, executed on experienced representatives of the selected CVC population, which consisted of media companies, web designers, portals and community organizers.

The distinctive characteristics of Commercial Virtual Communities consisted of five factors: online, distinctive focus, commercial orientation, membership, and content. The drivers that according to the literature add stickiness to CVCs were clustered in six separate sections and per cluster experts ranked these drivers by importance.

The results of the expert survey shows which aspects present within a CVC cause participants to extend the duration of a visit and increase the frequency of re-visits. The experts agree on the ranking of all six groups of drivers of stickiness. The findings are interesting for both academics and practitioners, specifically community organizers. We hope to have provided the first steps in developing a framework for defining and designing successful virtual communities with a commercial orientation.

6.1. Limitations

CVCs are relatively new phenomena. The chance that the respondents have based their answers on incorrect criteria is fair. The respondents of the performed pilot-interviews confirmed that, despite their experience with CVCs, they are still learning by the day. There is no blueprint available for building communities in a virtual environment. Our research was designed to contribute to the design of such a blueprint.

In addition, it can be argued that despite the fact that for all the groups of drivers of stickiness significant values of Kendall's coefficient W were found, these orderings might not be correct. It is possible that experts can agree in ordering the drivers because all employ a wrong criterion. A significant value of W would simply show that all more or less agree in

their use of a wrong criterion. However we believe that the experts that participated in this study have sufficient experience (average of 2 years) to avoid this pitfall.

Another limitation of the research is the fact that we only asked experts on their informed opinion about the importance of the drivers of stickiness. To confirm these results, a user survey would need to be performed to confirm the results.

Also, our survey takes a general approach to stickiness of CVCs. In a CVC, different types of users are active [15, 19]. Some users mainly visit communities to gather information, whereas others visit a CVC to meet other users. The rankings of drivers might differ among these types of users.

6.2. Suggestions for future research

This research has been exploratory of nature. It has found a number of drivers of stickiness in literature and has tried to present a framework to analyse the drivers. From these results further research can be conducted. Many different angles are interesting to explore. Future research could attempt to triangulate the results of this survey, investigate the magnitude of the effect of each individual factor, identify the category of factors that is most important to consider, or research how the drivers of stickiness differ among the different type of users that are active in a community.

7. References

1. Armstrong, A. and Hagel, J.I. Real Profits from Virtual Communities. *The McKinsey Quarterly*, 3, (1995), 126-141.
2. Beddoe-Stephens Yahoo: Getting Sticky with IT. <http://www.wired.com>, last accessed: November, 1999, (1999).
3. Billante, P., DeLey, W., Hom, G., Lewis, B., and Melia, K. Internet Portal Personalization Strategies: Segmentation using intangible Prices and sticky Features to lock-in Customers. http://web.mit.edu/dwilliam/www/final_paper_2-_edited.html, last accessed: November, 1999, (1998).
4. Bock, W. Online Commercial Communities. <http://www.bockinfo.com/docs/onlcomm.htm>, last accessed: Oktober, 1999, (1999).
5. Bond, O. Virtual Communities. *Managing Information*, 10, (1998), 39-41.
6. Brenner, E. VC conference in Bath. *Information Today*, (1998),
7. Bush, E. Company to Expand Strategic Alliances in Key Vertical Markets by Helping Partners Increase Portal Stickiness and Community Development, *Business Wire*, (March 23 1999) 1999,
8. Coffin, J. The Myth of Manufactured Stickiness. <http://www.searchz.com/Articles/1105992.html>, last accessed: November, 1999, (1999).
9. Daly, J. Stickiness. <http://www.business2.com>, last accessed: September, 1999, (1998).
10. Davenport, T. Sticky Business. *CIO*, February 1, (2000), 58-60.
11. DeFleur, M.J. and Ball-Rokeach, S.J. *Theories of Mass Communication*. New York, NY: Longman, (1989).
12. Doler, K. Remodeling Wall Street for Cyberinvestors, *Upside*, (April 11) 1999, 78.
13. Fool Homepage of The Motely Fool. <http://www.fool.com/>, last accessed: 31.1., 2001, (2001).
14. Gillespie, A., Krishna, M., Oliver, C., Olsen, K., and Thiel, M. Online Behaviour: Stickiness. http://ecommerce.vanderbilt.edu/paper_list.html#student%20, last accessed: November, 1999, (1999).
15. Hagel, J.I. and Armstrong, A.G. Net Gain: Expanding Markets Through Virtual Communities. *The McKinsey Quarterly*, 2, (1997), 140-153.
16. Hof, R.D. Now It's Your Web. *Business Week - European Edition*, October 5, (1998),

17. Hoffman, T.P. and Novak, T.P. Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations. <http://www.2000.ogsm.vanderbilt.edu/cmepaper.revision.july11.1995/cmepaper.html>, last accessed: November, 1999, (1995).
18. Jongmans, T. Pilot study interview, Interview with one Jongmans, T. on February 29, 2000, (2000).
19. Kozinets, R.V. E-tribalized Marketing?: The Strategic Implications of Virtual Communities of Consumption. *European Management Journal*, 17, 3, (1999), 252-264.
20. Luedi, A. Personalize or perish. *Journal of Electronic Marketing*, 7, 3, (1997), 22-25.
21. Maas, H. Lecture, in *Proceedings of Media Management Conference*, Maastricht, 2000.
22. Masey, K. Stickiness. *Journal of management accounting*, April, (1997),
23. Mierlo, H. Pilot study interview, Interview with one Mierlo, H. on February 29, (2000).
24. Oliva, R.A. Playing the Web Wild Card. *Marketing Management*, Spring 1998, (1998), 51-54.
25. Rheingold, H. The Virtual Community: Homesteading on the Electronic Frontier. <http://www.rheingold.com/vc/book>, last accessed: 7 February, 2000, (2000).
26. Romm, C., Pliskin, N., and Clarke, R. Virtual Communities and Society: Toward an Integrative Three Phase Model. *International Journal of Information Management*, 17, 4, (1997), 261-270.
27. Siegel, S. *Nonparametric statistics for behavioral sciences*. Tokyo: Kogakush Co., (1956).
28. Strauss, J. and Frost, R. *Marketing on the Internet*. New York: Prentice Hall, (1999).
29. Telegraaf Homepage of "De Telegraaf". <http://www.telegraaf.nl>, last accessed: 31.1., 2001, (2001).
30. Telnowitz, I. Geocities settles FTC privacy case, *Advertising Age*, (August 17) 1998,
31. Webmiles Homepage of Webmiles. <http://www.webmiles.com/>, last accessed: 31.1., 2001, (2001).

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