EMPOWERED COMMUNITIES:

HOW NEW COMMUNICATIONS TECHNOLOGIES AND APPLICATIONS ARE ENABLING COMMUNITIES OF INFLUENCE TO FORM AND DEVELOP

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Abstract

A question often being asked in the aftermath of the dot-com boom is: to what extent does the Internet enable communities of influence to form and develop? Governments, NGOs, companies, and individuals are interested in what may prove to be longer-lasting value than simply commercial, or 'pre-IPO.'

This paper attempts to answer this question by a considered, empirical study of what communities are and what factors or aspects of community development are particularly affected by the Internet. Communities fall, in size and scope, somewhere between individuals and supra-national entities. So, first, some of the literature on 'communities as proto-nations' is reviewed, as looking at nations helps frame subsequent discussions on community.

Then, four main elements for community formation and development are examined: identity and culture; communication, networks, and language; visualization; and facilitation of action. Each is discussed in some detail, with citations from the literature, with comments about the relevance of new communications and information technologies, and discussions of relevant examples.

Next, a selection of online communities, ranging in size from supra-national (The U.N. Information and Communications Task Force) to sub-national (a group of Italian schools who have joined together to write, edit, and publish a national newspaper) is presented. Each is discussed and looked at for its relevance to community-building and the use of technology to achieve results.

A technology review starts with a short description of the collapse of the 'dot-com revolution' and the spectacular declines of some of the world's largest telecommunications and media companies. During this period, it is argued, three of the Internet's ongoing achievements and trends have been obscured: there is sufficient infrastructure in place to allow the Internet to operate cost-effectively and to continue to grow; while the number of users has peaked in the United States and Europe, Asia, the Middle East and Africa are experiencing strong growth in users and in web sites; and there are a number of new or improving technologies which are making it easier than ever to communicate and form communities of common interest.

The paper ends with an analysis of one community against the four main elements of community formation mentioned above. A major conclusion is that, since many of these new technologies and applications (e.g. Instant Messenger, Internet Protocol telephony, Web logs) are being heavily used by children, it is possible to believe that the generation which is currently growing up and is comfortable with the broad array of communications and community-forming technologies, now and soon-to-be available, will have a better chance of using them to positive advantage than those currently in power.

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I. Introduction

One of the most empowering and comforting certainties of life is knowing what community you are a part of, where it is located, and what its values are.   Communities help define how people see themselves as individuals, and they create an extensive and complex set of relationships for anyone who chooses not to live an hermetic existence. Some of these communities are factors of birth—gender, siblings, immediate and extended family, race. Others are geographically-related—neighbors, citizens, countrymen. Still others are joined or created by necessity, belief, or interest—co-workers, religion, political parties, and teammates.

Community membership, then, is either a function of how, to whom and where a person is born, or what they choose, or are obliged, to be. New communities can be entered or abandoned; others remain the same throughout life. The word 'community' itself implies sameness of geographic space, of interest, or of governance.   It also implies 'sharing', either active or passive, and that is the element of community formation which is, at once, the most basic and yet most complex aspect of community-building, probably because it is the most difficult to define. For it is in sharing assets, ideas, and goals that the underlying sense of community—something which is 'common' to its members—comes into play. It is this aspect of community-building, in light of current and potential enabling effects of new technologies, which will be discussed in this paper.

Technology has always had an influence on individuals' and communities' ability to share, perhaps never more than it does today, at the beginning of the third millennium,

when people are exposed to more information, more places, more ideas, and more cultures than ever before. As Stanley Brunn comments in an essay about twenty-first-century geography, much of what we have learned about space and place at individual, community, national and global levels has been turned 'topsy-turvy,'[1] The national boundaries we have known are eroding, primarily due to new economic and supra-national communities (the EU, NAFTA, Mercosur and ASEAN,) and, concurrently with the disappearance of old states, new ones are emerging, putting new pressure on people to choose, or to identify with, a new communal identity, either at the personal, regional or national level.[2]

Technology, primarily telecommunications and the Internet, is making much of this possible. The evolution of the impact of modern communications technologies can be seen in their very names: first, in the mid-1800s, the *telegraph* (from the Greek *tele,* at a distance, and *graphos*, writing) which allowed written words to be transmitted, asynchronously, over a wired network; then the *telephone*, which added the immediacy and inflections of the spoken voice and two-way conversations[3]; next, the medium that allowed images to be broadcast to people far away (*television*, or, in German, *Fernsehen,*) which introduced people from all over the world to each others' cultures and made the Cold War real to so many, as they watched President Kennedy show the world the photographs of Russian missiles in Cuba.

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[1] Stanley D. Brunn, "Geography in a Topsy-Turvy World," *Semestre Geografico* 1, no. 1 (2001).
[2] Armenia in the last one hundred years provides an excellent illustration of a bewildering array of community context, choice, and definition. Armenian, Soviet, or Caucasian? The world's oldest 'state' religion, or state secularism? Armenian identity in diaspora, where the 1915 massacres provide the unifying thread, or Armenia defined by and within its current borders? Armenia as defined by Armenians, or by others (Lermontov, or, arguably, expatriates like William Saroyan?)
[3] It is tempting to speculate what might have happened, for instance, to the course of World War I if the famous intercepted Zimmerman telegraph had been an overheard telephone call?

Now, we are confronted with not only a new technology, the Internet, but a new etymological approach. The prefix *tele-* has been used primarily to symbolize man's conquering of distance, first by allowing words to be transmitted wherever wires had been strung, over land and under the oceans, to the current state of wireless transmission of all kinds of information, over bandwidth constantly increasing in spectrum and capacity, wherever a satellite's signal can reach. The word *Internet* implies two-way communication not only between (*Inter*) individuals, but also between networks, or communities. This conveys much greater implications for communities, nations, and, ultimately, world order. Whereas television and the early days of telecomputing, (now an obsolete term,) may have brought culture to people, it is a one-way medium which can be absorbed simply by watching; the Internet allows people to invest themselves back in a community in ways never before possible.[4]

The Internet and other new communications technologies and applications have the potential to empower communities to form, develop, and most importantly, interact to develop shared goals and policies, allowing them to participate in arenas where, for varied reasons and to varying degrees, they have not been able to have influence. This paper examines relevant aspects of community-forming and the current state of and trends in both the technology and the management of the Internet.[5] Although robust statistical and longitudinal case studies of the Internet's community-empowerment abilities are not yet possible due to their newness and the evolutionary nature of the technology, examples of

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[4] Timothy W. Luke, "Running Flat Out on the Road Ahead: Nationality, Sovereignty, and Territoriality in the World of the Information Superhighway," in *Rethinking Geopolitics*, ed. Gearóid Ó Tuathail and Simon Dalby (New York: Routledge, 1998), 283.
[5] For purposes of this paper and unless otherwise stated, the term 'Internet' encompasses all of the sub-technologies and applications it carries, e.g.: email; the World Wide Web; and Instant Messaging.

these 'early-adopter' communities will be presented and discussed, with conclusions about the effects of current trends in technology on potential community development.

II.　Community-building

It is beyond the scope of this paper to address substantially all of the issues around the creation and formation of communities. As the thesis being put forward is about the interplay between new communications technologies and the ability of groups of common interest to form and to act, the focus will be on those aspects of community-building which have been recognized by scholars and practitioners as essential, with comments on how technology can enable them to be shared across barriers and physical borders.

Introduction: Communities as 'proto-nations'

Communities fall, in size and scope, somewhere between individuals and supra-national entities. Some may be built around a common interest and may only last as long as, say, a single event, while others may be 'proto-national,'[6] eventually giving rise to new states. Much of what has been written about communities is about the coming together of people around a commonality of race, language, economic need, or other shared factor or desire, primarily for the formation of some kind of political entity. As such, their ability to share (or to re-interpret) a common history becomes important. Insofar as much of the discussion around these issues has been on nations, an introductory look at some

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[6] Following Eric J. Hobsbawm, *Nations and Nationalism Since 1780: Programme, Myth, Reality,* Second ed. (Cambridge U.K.: Cambridge University Press, 1990), 46.

definitions and descriptions of nationhood helps frame the subsequent focus on communities.

Eric Hobsbawm considers this definition of nationhood by Stalin in 1912 as representative: "A nation is a historically-evolved, stable community of language, territory, economic life and psychological make-up manifested in a community of culture."[7] Note the use of the word community twice, although the reader is not sure whether this is faithful to Stalin's original Russian (or, perhaps, his 'communal' Georgian.) The fact that a nation evolves from history is important in current context, primarily because of the ability of the Internet to portray and broadcast many versions of history and tradition simultaneously, with equal authority.

Stalin's view of an authoritarian, 'stable community' is in contrast to that of the philosopher and Orientalist Ernest Renan, whose nationality was French but whose own communal identity was strongly Breton.[8] In 1882, Renan gave a famous speech at the Sorbonne, "Qu'est-ce qu'une nation?" in which he defined the common elements of a nation in an expansive and insightful manner:

> Une nation est une âme, un principe spirituel. Deux choses qui, à vrai dire, n'en font qu'une, constituent cette âme, ce principe spirituel. L'une est dans le passé, l'autre dans le présent. L'une est la possession en commun d'un riche legs de souvenirs ; l'autre est le consentement actuel, le désir de vivre ensemble, la volonté de continuer à faire valoir l'héritage qu'on a reçu indivis...Avoir des gloires communes dans la passé, une volonté commune dans le présent ; avoir fait de grandes choses ensemble, vouloir en faire encore, voilà les conditions essentielles pour être un

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[7] Ibid, 5

[8] From the extraordinary 1897 biography of Renan by the English poet and critic Agnes Mary Frances Duclaux (better known as Mary Robinson) excerpted in *Encyclopædia Britannica*, ed. Hugh Chisholm, Eleventh ed., 29 vols. (Cambridge, UK: Cambridge University Press, 1910-11)..

peuple. Une nation est donc une grande solidarité, constituée par le sentiment des sacrifices qu'on a faits et de ceux qu'on est disposé à faire encore. Elle suppose un passé ; elle se résume pourtant dans le présent par un fait tangible : le consentement, le désir clairement exprimé de continuer la vie commune. L'existence d'une nation est (pardonnez-moi cette métaphore) un plébiscite de tous les jours, comme l'existence de l'individu est une affirmation perpétuelle de vie.[9]

The concept of shared history, or a 'rich legacy of memories,' is important, but Renan emphasizes that shared history should lead to a shared future, the 'clearly-expressed desire to continue communal life.' His closing comment, that a 'nation is a daily plebiscite' is interesting, because it demonstrates that the stability of nationhood depends on the ability of its communities to maintain a dialogue on its direction.

This is one of the few areas where there is already reasonable evidence on the Web. The WELL[10] is a good example of what Howard Rheingold, one of the original founders of the online community movement, calls "grassroots groupminds,"[11] a user-formed community which entices passers-by to become modest-dues-paying members by joining in on one of a number of themed conversations, on topics ranging from automobile repair to zoology, some of which have been going on for more than a decade. Known as "communities of thought" and certainly not pretending to be, or to consider being, a 'nations' in the political sense, some of these groups have built up considerable membership over many years[12] and have the elements of a structured community à la

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[9] Ernest Renan, "Qu'est-ce qu'une nation ?," (Lecture at the Sorbonne, Paris: March 11,1882). Electronic copy from the Bibliothèque Municipale de Lisieux (France.) Accessed electronically 8/29/02 from http://www.bmlisieux.com/archives/nation01.htm

[10] www.well.com

[11] Howard Rheingold, *The Virtual Community: Homesteading on the Electronic Frontier*, Revised ed. (Cambridge, MA: M.I.T. Press, 2000), 110-148.

[12] Measuring online community members is difficult due to their constant ebb and flow. The WELL's web site claims "thousands of members worldwide who publish tens of thousands of posts each week"

Renan—future collaboration based on past examples (a shared history), solidarity, esprit de corps, and, to be sure, daily discussions about how to make the site more useful.

One of the broadest concepts, some would say metaphor, of a proto- or super-national community yet put forth is that of the 'noosphere.'[13] The word comes from the Greek *noos* (the mind) and was first used by Pierre Teilhard de Chardin, the controversial French theologian, to describe the third stage of world evolution, the one which follows the geosphere and biosphere, the noosphere. He describes an area where global thought has been being collected and that, through improved communication (such as the not-yet-conceived Internet—he was writing in the 1950s), people could contribute to and take from this universal resource without losing their personal identities.

Arquilla and Ronfeldt submit that there are three realms of information: cyberspace (the global system of computers and other devices connected to the Internet); the infosphere (the Internet plus a broad range of other systems—media, libraries, the military, etc.); and the noosphere, as previously described and inclusive of the other two realms.

While still highly ideational, the idea of a space like the noosphere, where knowledge unites and is constantly being adapted in untrackable and uncountable ways, is a fair definition of what happens on the Internet today. Anyone who uses the Internet as a research tool has wondered where the 'end' of it is, for it appears limitless when it comes

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[13] Concepts from John Arquilla and David Ronfeldt, "The Emergence of Noopolitik: Toward an American Information Policy," (Santa Monica, CA: RAND, 1999).

to the ability to connect to the rest of the world and its information sources. What Teilhard

defined, however, was finite, and was bounded by an envelope or a skin which contained

it. The noosphere can be conceived of as a "complex membrane of information" which

surrounds the earth. This may sound somewhat like mad ramblings, until one considers

that the membrane metaphor is a pretty fair description of the networks, nodes and wires

which comprise the Internet today.[14]

The authors go on to propose that there is a new paradigm of 'noopolitik', which

builds on the idea of information-based soft power[15] and the growing power of non-state

actors. This is in contrast to state-based realpolitik, and, they submit, it is more reflective

of the current and future shape of global society. It suggests that community-building is

entering a new, as-yet-uncharted phase, where linkages can be made over distances and

through societal strata as never before.

If communities, either proto-national or of simple common interest, are formed by

creating a shared vision out of a potentially wide range of past experiences, then it is useful

to examine the main elements which are necessary[16] for them to do so. These can be

grouped as follows: identity and culture; communication, networks, and language;

visualization; and facilitation of action.   Key elements of each of these will be discussed

in turn, first by presenting their initial mention and subsequent interpretation, and then in

light of new technologies and their ability to enhance community development.

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[14] Jennifer Cobb Kreisberg, "A Globe, Clothing itself with a Brain," *Wired*, June 1995.

[15] Joseph Nye and William Owens, "America's Information Edge," *Foreign Affairs* 75, no. 2 (1996).

[16] …and, probably sufficient, although this is subject to debate which, although potentially intense, would not affect the conclusions being drawn herein.

Identity and Culture

Massimo d'Azeglio is reputed to have said, at the first meeting of the parliament of the newly-formed nation of Italy, "We have made Italy; now we have to make Italians."[17] Any newly-formed community provides at its outset only the history and the cultural customs which its individual members bring to it. To use Renan's phrase, "Elle suppose un passé," or it assumes a past, in order to provide the members with a historical record of where they have been and what they might do (or not do) in the future.

Benedict Anderson, in *Imagined Communities*, brings this process of cultural definition to an individual level.   He suggests that profound change, which any new community or nation, e.g. Italy, might invite in the process of its formation, brings with it a sort of 'amnesia.'[18] People tend to forget their pasts, or re-invent them, giving them a 'spin' which suits their purpose. He cites Renan's lecture: "Or, l'essence d'une nation est que tous les individus aient beaucoup de choses en commun et aussi que tous aient oublié bien des choses. "[19]

Whereas people who join together in common cause or motivation undoubtedly have, and seek, people of similar bent, persuasion or ideology, they themselves have forgotten, willingly or unconsciously, much of their own past. The passage of time, the

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[17] Hobsbawm, *Nations and Nationalism*, 44.
[18] Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism*, Revised ed. (London: Verso, 1991), 204..
[19] Ibid.199

maturation process, and the changing circumstances of life make this so. And, as they change, their identities evolve into new forms, perhaps as the butterfly emerges from the chrysalis or, less dramatically, old skin is sloughed off to make way for new.

Rousseau might have considered this aspect of human nature when he formulated the ideas behind his social contract, in that the borderline between individuals and the community to which they belong is constantly shifting. Ithiel Pool noted this in his writings on the relationships between individuals and their communities, pointing out that the absolute standards set down by Rousseau, requiring the virtuous citizen to 'give' himself to the community, are too ideal to be fulfilled, and that the best that can be expected is that communities can develop where there is a 'contract' based on trust, which is evidenced, for example, by the American "propensity to community organization."[20]

On the subject of identity and community formation, Anderson goes on to add that modernity has brought with it host of mechanical (and technological) documentary evidence—photographs, identity cards, letters, etc.—which "simultaneously records a certain apparent continuity and emphasizes its loss from memory." Out of this, we are constantly re-forming our individual identities by creating 'narratives.' This issue of 'identity labeling' is, to some people, of extreme importance. As Brunn points out, conflicts emerge and wars are still fought over identity.[21]

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[20] Lloyd S. Etheredge, ed., *Politics in Wired Nations: Selected Writrings of Ithiel de Sola Pool* (New Brunswick, NJ: Transaction Publishers, 2002), 282-5.
[21] Brunn, "Geography in a Topsy-Turvy World."

Samuel Huntington takes this idea a step further. In his original article "The Clash of Civilizations?" in *Foreign Affairs*,[22] he points out that civilizations are cultural entities. As such, they are made up of a variety of "villages, regions, ethnic groups, nationalities, religious groups, all (having) distinct cultures at distinct levels of cultural heterogeneity." These cultural characteristics are ingrained in people at varying levels of importance. How can one determine how important various aspects of identity are to an individual? Huntington uses the example that, while a person can be half-French and half-Arab and even a citizen of more than one country, it is more difficult (his word) to be half-Catholic and half-Muslim.

What, then can be said about a medium which facilitates anonymity as does the Internet? Many users adopt a pseudonym and invent a persona for other people to visualize as they converse. This quickly became popularized in a cartoon which appeared in *The New Yorker* in the early 1990's which depicted two dogs in front of a computer, with one of them saying "The great thing about the Internet is that no-one knows you're a dog." This phenomenon, while not new, has given critics of cyberspace much fodder for their criticism, and portrayals of anti-social people sitting alone in front of their computers seeking to connect to people through the Internet often precede dire warnings about a growing dysfunctional society of isolated people acting out a fantasy existence.

But can the Internet's powerful connectivity and ubiquity be singled out as the main agent of this isolating phenomenon? Anderson and others would argue that this is hardly new. In fact, they might say that anonymity is essential in the early days of a new

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[22] Samuel P. Huntington, "The Clash of Civilizations?," *Foreign Affairs* 72, no. 3 (1993).

community and that one must share history and, eventually, expose one's true identity in order to make what could be called a Rousseauian investment in order to achieve the benefits of the community.

John Agnew reinforces this in his discussion of the re-visioning of global politics. He makes the observation that the major breakthroughs of communication and transportation technologies of recent times—the steamship, automobile, telegraph, and telephone—have 'closed' the world, whereas cyberspace 'opens' it, and this is its major impact.[23] People have always viewed the world beyond the horizon as both "threatening and alluring, repelling and attracting." The Internet changes the geography of relationships, much as Ptolemy and his successors changed the link between 'us and them' by the introduction of geographic mapping and, later, perspective and convergence.[24] The Internet, then, provides both opportunities and challenges for individual and communal identity definition; in investment terms it might be said that the risk/reward ratio has greatly increased.

A balanced view on the effects of cyberspace communities is one which takes into account the fact that Internet interactions extend and improve, but do not replace, normal social interactions. At a conference at Harvard in May of 1998, Howard Rheingold reflected on his long-time involvement with Web-based community building, and he cautioned people from mistaking the exchange of information on computer monitors for real human relationships. He also acknowledged the potential alienation which hours in

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[23] John Agnew, *Geopolitics: Re-visioning World Politics*, ed. Derek Gregory, Frontiers (London: Routledge, 1998), 19.
[24] Ibid., 20.

front of a screen can cause. However, he rightly pointed out that the isolation of modern society is primarily a product of single-passenger automobiles and isolated office cubicles; the computer screen is only part of a larger problem.[25]

Communication, Networks, and Language

William Mitchell, one of the first and foremost writers about cyberspace, in his discussion of the breadth of communications capabilities of the Internet, quotes Thoreau as writing in 1854: "We are in a great haste to construct a magnetic telegraph from Maine to Texas; but Maine and Texas, it may be, have nothing to communicate."[26] Granted, Thoreau's sense of community was decidedly local, but similar attitudes and prognostications have accompanied the introduction of all major new communications breakthroughs ever since and probably before.

In the case of the Internet, it can be said that we may be just getting past the point where the medium *is* the message, and one can start to separate out the unprecedented speed, capacity, and sheer magnitude of its myriad networks and almost-uncountable points of presence from its applications and uses.[27] As recently as the mid-1990s, Manuel Castells, the prolific and perhaps the most influential writer on the sociology of information and communications technologies, described cyberspace and virtuality as

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[25] Howard Rheingold, *Virtual Communities, Phony Communities?*(1998, accessed 4/12 2002); available from http://cybercon98.harvard.edu/wcm/rheingold.html.
[26] William J. Mitchell, *E-topia: "Urban life, Jim--but not as we know it"* (Cambridge: MIT Press, 2000), 88.
[27] The spectacular collapse in 2001-2 of the dot-com 'industry' and many major communications companies have hastened this separation; see later discussion

"reality captured *entirely* by communications"[28] (emphasis added.) Two more recent

writers, both geographers of cyberspace, take a more measured view, saying that, while

people do spend time on line to gain a sense of community, the Internet enhances and

extends social interaction—it does not replace it or become it.[29]

The connection between communications and communities was recognized by Karl

Deutsch in the mid-1960s, and no one has yet put it more succinctly: "The community

which permits a common history to be experienced as common is a community of

complementary habits and facilities of communication."[30]   Further, Deutsch cited four

factors affecting information communication and the social experience: the speed of

change; the stored interests of the individual and the group; new learning processes; and

the ability and will to act on communicated information

But if communities thrive on the quantity and quality of their communications

networks, how do they use communication to form and develop?   Benedict Anderson

wrote that "even the members of the smallest nation will never know most of their fellow-

members…yet in the minds of each lives the image of their communion. Communities are

not to be distinguished by their falsity/genuineness, but by the style in which they are

imagined" [31]   Imagine, then, the impact of the first mass-circulation newspapers in the 19th

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[28] Manuel Castells, *The Internet Galaxy: Reflections on the Internet, Business and Society* (Oxford: Oxford University Press, 2001). The quotation comes from a talk given several years earlier.
[29] Martin Dodge and Rob Kitchin, *Mapping Cyberspace* (London: Routledge, 2001), 55.
[30] Karl W. Deutsch, *Nationalism and Social Communication: An Inquiry into the Foundations of Nationality*, 2nd. ed. (Cambridge, MA: M.I.T. Press, 1966), 96.
[31] Anderson, *Imagined Communities*, 6.

century. What he calls the 'one-day best-sellers' of 'print capitalism' enabled fast-growing populations to "think about themselves, and to relate to others, in profoundly new ways."[32]

Perhaps he was influenced by what de Toqueville had to say about the relationship between newspapers and associations (or communities :) "A newspaper is a counselor that one does not need to go seek, but that presents itself of its own accord and that speaks to you briefly each day and of common affairs without disturbing your particular affairs." [33] His subsequent description of how newspapers help people associate who feel "small and lost in a crowd…do not see each other or know how to find each other" is an almost-uncanny precursor of one of the great advantages of the Internet: to associate with people from all over the world, together with the possibility, for better or worse, of assuming a new identity, perhaps inventing the history that one wishes to share. And, newspapers are turning out to have new life on the Internet, as shall be discussed later.

Given the complex backgrounds, motivations, and goals which people bring into newly-forming communities, the ability to communicate, to create 'narratives,' becomes essential. While Anderson's main narrative vehicle is the press, he was writing in 1983, and, even in his 1991 revision, he does not mention the power of new technologies. The World Wide Web was only published in 1992, and it is interesting to note that one of the latest and most popular activities (or applications—the distinction blurs) is the creation of

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[32]Ibid., 36.
[33] Alexis de Toqueville, *Democracy in America*, trans. Harvey C. Mansfield and Delba Winthrop (Chicago: University of Chicago Press, 2000), 493-5.

personal histories, or web logs,[34] which, though starting out as individual narratives, are becoming manifestos for community-creation, especially in countries where freedom of the press is not taken for granted, such as Iran.[35]

As is evident from the example mentioned above, people communicate with each other via communications networks. Writing in the late 1950s, when the prevailing thinking was that national governments, political parties, and other interest groups set agendas, brokered power, and decided political outcomes, Manfred Kochen and Ithiel Pool were among the first to look at and quantify the influence of global personal communications networks in their breakthrough paper "Contacts and Influence."[36] This paper was instrumental in establishing the understanding of how personal networks form and how they extend internationally. It gave rise to the so-called "small-world phenomenon" due primarily to Kochen's mathematical model which predicted that, through their networks of friends, relatives and acquaintances, people are much more closely connected than they think to people they've never met.[37] The problem, of course, is remembering whom one has met. Unfortunately, the authors have no ready fix for this.

Clearly, Kochen and Pool had no idea how relevant their work would be in light of recent communications technologies. Their measures of network influence were conceived long beforehand, and Pool himself died in 1984. The Internet's power, it has often been

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[34] Known familiarly as 'blogging.' There are tens of thousands of such logs on the Web as of mid-2002; www.blogger.com attempts to keep up with the quantity and quality.
[35] See Tim Judahs's story, "The Sullen Majority," in *The New York Times Magazine*, 9/1/02, for an excellent description of how young Iranians are using blogs to create a more liberal culture and perhaps even the foundations of a counter-revolution.
[36] Etheredge, ed., *Politics in Wired Nations*, 11.(Editor's introduction)
[37] Etheredge also mentions that the play and movie *Six Degrees of Separation* come from this work, which also may have spawned or popularized the verb "to network'

said, is that it is a network of networks, and it has been found that the value of networks increases exponentially. Robert Metcalfe, who designed Ethernet, essentially the global standard protocol for computer networks, speculated (accurately, it turns out) that a network's usefulness is equal to the square of the number of its users.[38]

Studies of the take-up of telephones, fax machines, and connected computers bear out this theory. It is easy to see why. If there is only one other person who has a telephone, a fax machine, or an Internet connection, there is little utility in the connection. But, if many or most people in a town, region, or country are connected, the value markedly increases, as more business can be done or social contacts made. The Internet connects virtually the entire world at a relatively low cost; further, it costs the same to send an email to the next room or to an antipodean colleague, and that cost is nothing, at the margin. It is worth noting that what took the telephone several decades has taken the Internet only a few years, however.

So, communication vehicles exist, and worldwide networks are in place to carry information of all kinds, to all places, at all times. This brings up the issue of language, which is central to any discussion about communication. Anderson describes how newspapers laid the basis for national consciousness, affected language, slowing down the rate of change and standardizing and creating languages of power, such as Hoch Deutsch or the King's English.[39]

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[38] 'Metcalfe's Law' is an oft-cited companion to Moore'e Law, which states that computer processing power will double every eighteen months at a constant price. Both have held remarkably true over many years.
[39] Anderson, *Imagined Communities*, 38.

What is the 'language of power' in cyberspace?   In studies cited by Pippa Norris of

Harvard in 2001, the percentage of web pages in English is in the mid-80s, with the next-

closest being German at 4.5%.[40] Whereas the King's English is certainly dominant in most

information and commercial sites visited by US and European users, tables in a recent

RAND report on political use of the Internet in China show that, by Chinese government

estimates, between October, 1997 and January, 2002: the number of users grew from

620,000 to 33,700,000; total available bandwidth of international connections increased

from 25 to 7,500 megabits per second; and the number of connected computers rose from

300,000 to more than 12,000,000.[41] Only about 20% of the web sites visited are in

languages other than Chinese. Even though the report raises doubts about the

methodology used by the agency which reports these numbers, there is little doubt that any

discussion of the 'language of power' of the Internet must include the language(s) of the

world's most populous—and increasingly connected—nation.[42]

But spoken languages are only one aspect. Kochen pointed out in 1977 that, in

order for people to express what is really important to them, they need to have a common

language, or, better, a pictorial language which would help them express their own

interests and those of a larger community, communicated over networks of several

information systems.[43] When Kochen was writing, the major users and exchangers of

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[40] Pippa Norris, *Digital Divide: Civic Engagement, Information Poverty, and the Internet Worldwide* (Cambridge, UK: Cambridge University Press, 2001), 59-60. The studies mentioned were carried out in 1997 and 2000.

[41] Michael S. Chase and James C. Mulvenon, *You've Got Dissent! Chinese Dissident Use of the Internet and Beijing's Counter-Strategies* (Santa Monica, CA: RAND, 2002).

[42] It has also been reported that there are more than 180 million mobile-phone user in China.

[43] Manfred Kochen, "Information Systems for World Models," in *Problems of World Modeling: Political and Social Implications*, ed. Karl W. Deutsch et al. (Cambridge, MA: Ballinger Publishing Co., 1977), 388.

information were the academic and scientific communities, and his paper was originally written with the idea of scientists exchanging information in mind.

While this line of thinking could apply to the formation of any online community, some of the best examples of the use of 'common language' are to still be found amongst those who have used them the longest and most dependently. Pool's editor, Lloyd Ethredge, cites an example of a new global Internet research colloquium connecting thousands of desktop PCs of educators, public health professionals, students, and other interested parties in more than one-hundred-and-ten countries, sponsored by the Yale Medical School and others. The network will connect people (individually and in large forums,) make data instantly accessible, and act as a giant supercomputer doing processing jobs of hitherto-inconceivable enormity.[44] What does this signify? The ability to form communities of this size and potential influence, at very low cost (mostly administrative,) is first being achieved in communities where everyone speaks the same 'language,' in this case, science. The cost and availability of technology are no longer major barriers, at least in the developed world.

Finally on language, there is an issue of fluency and comfort with the vernacular in common use on the Internet, especially that found in emails or instant messages. In an interview, John Seely Brown, the former head of Xerox's Palo Alto Research facility and one of the true pioneers of computing and cyber-communications, Admitting that an

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[44] Lloyd S. Etheredge, *What Next? The Legacy of Ithiel de Sola Pool*(MIT Communications Forum, 2002, accessed October 4 2002); available from http://web.mit.edu/comm-forum/papers/etheredge.html.

educator and visionary of his stature used to think hypertext and video games were children's nonsense, he goes on to say that these are now important factors in education:

> …there is a new kind of digital divide now and it is the divide between faculty and students. Faculty, stuck in yesterday's analog world, are confronted with students who arrive nicely fluent in digital technology and the virtues of hyperspeed. Students already have a handle on how to convey their emotional states electronically. It's up to adults to learn that vernacular…Educators who create programs for adult learning and distance learning need to apply the vernacular and deepen and strengthen these new means of communication.[45]

Brown highlights the fact that children are the most comfortable with the new 'language' of communications. They also believe in the ability of information and communications technologies, networks, and languages to affect how communities form and how they relate to each other. Children (and Internet-savvy adults) can choose to communicate *asynchronously*, either by sending emails or bulletin-board postings, which can be prepared, edited and sent at a time of the user's choosing. Or, they can choose real-time, or *synchronous*, communication, either by entering into an Instant Messaging conversation, as described previously, or by joining a chat room, or discussion forum, exchanging views with users whose number, place of origin and motivation is not necessarily known, using words, sounds, and images of all types.

The limitation is no longer the technology, and as telecommunications rates in other countries than the U.S, (where they are already low) continue to fall, cost will become much less of a barrier to those who wish to form communities.

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[45] Martha Lagace, "'Screen Language': The New Currency for Learning: An Interview with John Seely Brown," *Harvard Business School: Working Knowledge*, May 13 2002. Accessed electronically 10/05/02 from http://hbsworkingknowledge.hbs.edu. See also John Seely Brown and Paul Duguid, *The Social Life of Information* (Boston: Harvard Business School Press, 2000).

Visualization

Reformulating what was said at the outset, one of the great and comforting certainties of life is the knowledge of where you are at any given time. More specifically, knowing what community you are part of and being able to visualize exactly where it is located and all the details pertaining to its location give people a sense of belonging, and, even, purpose. A recent *Economist* article cites a paper co-written by professors at the London School of Economics and UCLA which makes the case that, even in a wired world, certain kinds of commercial information exchanges, like deal discussions and sales motivation events are best done face-to-face.[46]

These exchanges rely on transmitting emotions, not just facts, and, unlike the children John Seely Brown mentions who have already learned how to convey their emotions electronically, today's adult businesspeople apparently either have not learned how or are not comfortable doing so. As Jean Baudrillard so succinctly puts it, going from the three-dimensional, life-sized world in which we live to a miniaturized, two-dimensional screened image presents a complex range of psychological difficulties.[47]

We don't think about it very much, but the interplay between visualization and the technological tools we use to communicate have become part of our daily lives. Consider that most integrated and familiar communications tool: the telephone. We tend no longer

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[46] "Press the flesh, not the keyboard," *The Economist*, August 24 2002.

[47] Jean Baudrillard, *The Ecstasy of Communication*, ed. Sylvère Lotringer, trans. Bernard Schutze and Caroline Schutze, Semiotext(e) Foreign Agents Series (New York: Semiotext(e), 1988), 22-27.

to need to visualize the other person we speak to on a fixed-line telephone, most likely

because we generally know where the number of the person you have called is located, and

services such as Caller ID displays the number of someone calling.[48]

However, the need to visualize has returned with the advent of mobile telephony,

where, almost inevitably, the first question asked of the mobile user is: "Where are you?"

Wireless users can be anywhere, and the need to contextualize, to see where the user is,

somehow helps us formulate our conversational approach. For instance, knowing that

someone is speaking on a hand-held cell phone while driving a car tends to shorten

conversations down to just the required information. People are also less-inclined to talk

about confidential matters when mobile phones in public places are involved.

Visualizing the Internet creates a whole new set of demands. Consider Castells'

description of cyberspace: the space of *places*, the concept upon which physical

geography has been traditionally based, is being overlaid by a space of *flows*, where space

organizes time, and computer-driven communications networks create and define personal

and commercial relationships. [49]   While the reordering of time and the reconfiguring of

space are hyperbole, they are illustrative of the breadth and depth of the imagined or real

effects of cyberspace, especially amongst those who have experience in online community

building. As Mitchell puts it:

> It is far too facile, then, simply to equate communication with community (despite
> the fact that the terms have the same Latin root) and to conceive of cyberspace as

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[48] Although we are discomforted when the caller's ID is blocked.

[49] Manuel Castells, *The Information Age: Economy, Society and Culture. Volume I: The Rise of the Network Society*, 2nd ed., 3 vols., vol. 1 (Oxford: Oxford University Press, 2001), 407.

some sort of vast village green in the sky. The effects of online interaction are various, complicated, and sometimes socially and culturally contradictory. While they are breaking down some established categories and boundaries, online meeting places can simultaneously strengthen others, and even create new ones. And they are clearly creating a condition under which individuals position themselves less as members of discrete, well-bounded, civic formations and more as intersection points of multiple, spatially diffuse, categorical communities.[50]

Mitchell, being a city planner, also offers a helpful analogy on visualizing cyberspace: the Internet blurs the historical distinction between that of *civitas*, a community based on shared beliefs and not necessarily related to any particular place, and *urbs*, the urban space which has traditionally been the "territory of civic formation."[51] Stanley Brunn takes this a step further in his paper on the rise of three-dimensional, nodal geography versus the two-dimensional, Westphalian system: "The appearance of the highly electronically integrated and connected state will not be evident on a world map, where (only) states and continents are displayed."[52] His point is that 'space-adjusting technologies' and the increasing frequency of information exchanges, across borders and permeating the regulatory regimes of national governments make the borders of the Westphalian states increasingly obsolete.

'Mental maps,' spatial consciousness, Mackinder's concept of the 'heartland' and many other concepts have all been central to the understanding of how people and governments visualize their proximate and distant neighbors. [53]   Maps have long helped to

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[50] Mitchell, *E-topia*, 89-90.
[51] William J. Mitchell, *City of Bits: Space, Place, and the Infobahn* (Cambridge: MIT Press, 1996; reprint, 2000), 159-60.
[52] Stanley D. Brunn, "A Treaty of Silicon for the Treaty of Westphalia? New Territorial Dimensions of Modern Statehood," in *Boundaries, Territory and Postmodernity*, ed. David Newman (London: Frank Cass, 1999), 114.
[53] For a considered and thorough discussion, see Alan K. Henrikson, "The Power and Politics of Maps," in *Reordering the World: Geopolitical Perspectives on the 21st Century*, ed. George J. Demko and William B. Wood (Boulder, CO: Westview Press, 1999).

help organize and frame the knowledge required to make public policy and commercial decisions. However, if maps are not just geographic references but reflections of how people and nations look at the world, their place in it, and their relationships to others, then the new field of cyber-geography has the potential to change the way we look at global online communities.

> It has long been recognized that geographical visualizations, in all manifestations, form an integral part of how we understand the world. In the case of information that has a geographic referent and spatial attributes [e.g. information and communications technologies], constructing a map or spatialisation provides a means by which to visualize and describe that form. It also reveals important insights into who controls the infrastructure, who has access to cyberspace, how the system can be surveyed, and how and from where cyberspace is being used.[54]

In their recently-published book, *The Atlas of Cyberspace*,[55] two British geographers, Martin Dodge and Rob Kitchin, have created the first comprehensive collection of visual images of cyberspace and its relationship to the physical and social world. This is a compendium of maps which range from arresting, full-color representations of traffic flows and some of the more elaborate simulated cities created by members of online collaborative communities, or 'multi-user domains.'

These maps are attempts to bring visualize, in Castells' words, the 'space of flows', the extensive communications which flow in ever-increasing density through cyberspace (or, perhaps, into the Noosphere,) in relation to the more-familiar geography of place with which most of us are more comfortable. However, the challenge is to marry traditional analog geographic analysis, where space is continuous and ordered, with the digital world

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[54] Dodge and Kitchin (2001) p. 69
[55] Martin Dodge and Rob Kitchin, *The Atlas of Cyberspace*, 1st ed. (Malden, MA: Addison-Wesley, 2002). .

of cyberspace, where the map can actually be the territory, not just the representation of it.[56]

A look at these maps shows the great promise of this new field of research.[57] Most of the work is being done in Europe, where, unlike in the U.S., geography is still an active and widespread field of study. The U.K and the Netherlands[58] are leading the way, and new GIS-type projections of data on cyber-maps will hopefully be available in within the next few years. Given the strong, human need to visualize one's community and one's fellow members, or at least to see where the members are, it does not seem too far-fetched to hypothesize that the impact of cybergeography on community development could be similar to that of seventeenth-century Dutch maps on the developing states of Europe and their subsequent international aspirations, especially during the era of colonial expansion.

Facilitation of Action

A decade before the World Wide Web was published and shortly before his death, Ithiel Pool predicted that

> Networked computers will be the printing presses of the twenty-first century. If they are not free of public control, the continued application of constitutional immunities to non-electronic mechanical presses, lecture halls, and man-carried sheets of paper may become no more than a quaint archaism, a sort of Hyde Park Corner where a few eccentrics can gather while the major policy debates take place elsewhere.[59]

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[56] *Ibid*, p. 30
[57] Examples of the different approaches to cyberspace mapping discussed in *The Atlas of Cyberspace* can be found in the appendix to this paper
[58] Especially the engineering faculty at TU Delft and at Eindhoven Univeristy
[59] Ithiel de Sola Pool, *Technologies of Freedom* (Cambridge, MA: Harvard University Press, 1983), 224-5.

The use of the metaphor of newspapers and printing presses, from de Toqueville through Anderson, Pool and others, is still relevant today. Contrast this with the view that instant communication has the potential to "blur every instance of collective identity" or create multiple identities at will, bringing the obsolescence of printed books into question.[60] These citations exemplify the spread of opinions which dominate discussions of the power of new communications technologies.

Such a discussion might well start with the opinion expressed by Mitchell, that the Internet is "a remarkable political invention—a very large-scale structure with significant built-in capacity to resist concentration of power and authoritarian control."[61] While there is little argument about the size and communications power of the Internet, on the issue of translating the sense of shared values of a community into action there is a lot of debate.

Much of the press coverage of the Internet is given over to three exploitative activities: pedophilia, pornography and, most recently, terrorism. But are these activities done or controlled by communities of interest?   Much of the first is committed by individuals; the second is a business, usually quite legal, although it takes advantage of the 'borderless' internet to serve customers in jurisdictions where it is illegal[62]; and the third,

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[60] Eduardo Portella, "Introduction," in *The Book: A World Transformed*, ed. Eduardo Portella (Paris: UNESCO, 2001), 8.
[61] Mitchell, *City of Bits*, 150.
[62] In Saudi Arabia, where websites being served up by the local (controllable) service providers are strictly censored, there is so much pornography and other contraband being obtained by Saudis simply by making a long-distance call to a service provider in another country (virtually uncontrollable,) that it is rumored that the censors are being pressured (quietly) to review their practices and allow more freedom of access to other, less sacrilegious but currently-forbidden sites. See a current list of sites blocked by the government, tracked by the Berkman Center at Harvard Law School, at http://cyber.law.harvard.edu/filtering/saudiarabia . Also see Jennifer Lee, "Saudi Censorship of Web Ranges Far Beyond Tenets of Islam, Study Finds," *The New York Times*, August 29 2002.

terrorism, is arguably a 'community' activity, but the extent to which terrorism cells can be called 'communities of interest' as defined herein is debatable. The more appropriate conclusion is that powerful, potentially-transformative tools in the hands of the wrong people have always led to destructive acts. It is, and will always be, unavoidable, especially when technologies are new and largely unregulated. As international Internet regulation is virtually nonexistent, and as terrorism is high on the international agenda at present, the work that is currently being done to discover how groups such as these use the Internet will probably lead to decisions about how best to limit their capabilities to exploit cyberspace.[63]

The potential positive uses of cyberspace are many. The keys to success for facilitating community development can be boiled down to three[64]: first, there must be open, easy, and free access, not restricted by the owners if the infrastructure; second, people must feel secure and comfortable in order to promote free expression; and, last, cultural presumptions and cues built into an interface must not discourage potential users. These could include language, design elements, or anything else which would make a potential community member feel preemptively unwelcome.

III.   Selected Communities

This section provides a tour d'horizon of a range of community activities in cyberspace. The examples chosen are by no means the only ones, but they are

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[63] The U.S. government acknowledges that there is much work being done. Discussions with people at RAND confirm this. Both are close-mouthed about specifics at the current time.
[64] Synthesized from Castells, Mitchell, Rheingold, and Dodge and Kitchen

representative of various sizes and orientations of the communities discussed in this paper.

Brief descriptions and comments are offered for each. One word of caution: while URLs

are given for each site, these are relatively new and forming communities, so that

descriptions of activities obtained during the research for this paper (June through

September, 2002) may not reflect what the reader sees when accessing these sites at a later

time. However, the reader will be able to tell how much the community has evolved by

comparison.[65]

Looking first at the highest, supra-national community level, Amitai Etzioni of

George Washington University cites two examples of communities trying to "translate a

sense of community into action" by creating shared visions amongst their diverse

members.[66] The first is the EU, faced with the difficult task of transferring national

loyalties 'upward.' The EU has been and continues to be a major builder and user of web

sites to create community-level groups essential to this transition.

Perhaps the best example is in the Innovation Directorate. Its Linked Cities

program puts cities and regions from disparate parts of Europe into five thematic

networks[67] where companies, governments and universities within each network are

charged with learning from each other to create 'best-of-breed' models for start-ups. This

program, and the Innovation Scorecard program in which these networks participate, are

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[65] For the reader accessing this paper electronically, all of the web sites cited are clickable hyperlinks.
[66] Amitai Etzioni, *Political Unification Revisited: On Building Supranational Communities* (New York: Lexington Books, 2002). Quoted in a speech delivered at a RAND seminar in 2002. Accessed electronically July 23 2002 from http://www.rand.org/publications/randreview/issues/rr.04.02/values.html
[67] KREO, PANEL, HIGHEST, SPRING and START

almost entirely run online.[68] It is regarded as one of the best online entities within the EU

and the international innovation community, perhaps to be expected from a community

which has long depended on the Internet, first for communications and then for

information-sharing.

Amitai's second 'community of action' is the UN. The broadest mandate for UN

involvement in information and communications technologies (called ICT) comes from its

Millennium Declaration: "To ensure that the benefits of new technologies, especially

information and communication technologies…are available to all. "[69]   The ellipsis refers

to ECOSOC, under whose auspices the ICT Task Force has been established and which

first met in November, 2001. Their founding document states that this is "the first body

created by an intergovernmental decision of the UN in which members representing

governments, civil society (including the private sector, not-for-profit foundations, NGOs

and academia) and organizations of the United Nations system have equal decision-making

power." [70]

The document ends with the recognition that "harnessing the potential of the ICT

revolution for development for all, for the reduction of poverty, and for the empowerment

of those who are currently marginalized, is a monumental challenge."   Looking at the

private-sector members, and considering the Plan of Action and the complexities and

vastly different agendas of the 'equal decision-making' constituents, it remains to be seen

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[68] Details can be found at www.cordis.lu and www.thirdforum.org
[69] From Article III, Section 20 of A/RES/55/2, adopted by the General Assembly on September 18 2000.
Available from www.un.org
[70] The ICT's founding document can be found at http://www.unicttaskforce.org/about/principal.asp

if the ICT is too big, too high-level, and too invested in high marquee-value to act effectively. Perhaps the discipline of the decision-making process and the interest of the Secretary General will help. The quality and achievability of the first programs, due to be announced at the World Summit on Information Society in 2003, will in part be measured by their ability to stimulate and foster growth of communities of users amongst the vast number of people they have been charged to help.

At the national level, there is evidence that communities of interest may help repair what Huntington calls 'torn' countries like Turkey, the former Yugoslav states, and the former Soviet Union. It would be hard to find a better example at present than Otpor, the student-led community which played a major role in the ouster of Slobodan Milosevic.[71] The story of Otpor's role in organizing the opposition is well-known, but what has not been highlighted are two points relevant to the subject of this paper: the resistance communities formed themselves in cyberspace; and several new technologies and applications were innovatively used to outwit the government.

In 1996, shortly after Milosevic annulled the November elections, many of the 3000 users of a small Serbian Internet service provider (ISP) called Sezam Pro, mostly students at Belgrade University, began emailing each other. Within a day, a website had been set up, starting a trend which would include the foundation of Otpor (which has a

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[71] The story is told, in detail and with references, on the web site of the PBS-aired special "Bringing Down a Dictator" See http://www.pbs.org/weta/dictator/rock/internet.html. Also see www.temps-reels.net/actualites34.htm for a chronology (in French) with links to many relevant sites. Otpor's own site, www.otpor.com , is currently available only in Serbo-Croatian.

website before it had an office.) This was the first known use of the Internet to form communities joined in common purpose of combating a regime's arbitrary use of power.[72]

Otpor's creative use of the Internet to assemble rallies of more than 100,000 people went almost unnoticed by the government in early days, simply because it was inconceivable that a service only subscribed to by 10,000 people[73] could possibly have such an effect. No one in power had considered the power of (and few had ever used) email, and computers were still viewed as things that computed, not communicated. In fact, mass email campaigns became a common way for the foreign press to be informed of what was happening inside Serbia at a time when access to and within the country was not easy.

When, in December, 1996, the government shut down the only independent radio station in Belgrade, Radio B92, its signal was immediately rerouted via the Internet, thus making it available to the entire outside world as well. The BBC rebroadcast the signals on shortwave radio so that everyone could hear. The government, again, was out foxed, and Milosevic lifted the ban only two days after it was put in place. Otpor also used Short Message Service (SMS) a feature included on GSM[74] mobile phones, which were much more widespread, primarily for communicating meeting times and places.

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[72]David S. Bennahum, "The Internet Revolution," *Wired*, April 1997.Accessed electronically 9/3/02 from http://www.wired.com/wired/archive/5.04/ff_belgrad_pr.html

[73] At the time of Milosevic's overthrow, it is estimated than somewhere between 300,000 to 400,000 people had online access.

[74] Global System for Mobile—the mobile phone system used in all of Europe and much of the rest of the world

The Otpor community's shared history is about regime change; its symbol, a clenched fist, reinforces that image. It will be interesting to see if its members wish to make it into an agency for Serbia's reconstruction. Early evidence is inconclusive, but it is interesting to note that the English translation of its website is not up at the moment (and has not been for several months,) perhaps reflecting a greater emphasis in intra-community discussion rather than its former role as an information disseminator to the West.

The people of Serbia probably didn't know it while they were doing it, but one of the major innovations which the Internet and the World Wide Web have brought the advantage of doing things before knowing how to do them.[75] The normal mode of learning is to put general knowledge, learned at the outset, into specific practice. Cyberspace encourages doing it the other way around; it lends itself to technological experimentation, with its easy-to-use interface (the Web,) and the growing robustness of crash-resistant operating systems. Most people only use parts of programs, and user's manuals are so infrequently consulted that many software packages don't even come with them; they are available on line, where, it is assumed, everyone has access to them. So, we learn the parts by *doing*, and the whole by *knowing*, by studying and gaining knowledge, and, in cyberspace, it is possible, even encouraged, to do before we know.

No one knows this better than children. Any parent who watches his child chatting in shorthand to his or her friends over the Internet understands the power of one of the new instant-messaging services, if only by the fact that it has replaced time once spent talking

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[75] After a point made by John Agnew in *Geopolitics,* p. 98

on the telephone, watching television, or even playing shoot-'em-up games on the computer.[76]

What that parent may not realize is that he is witnessing an exercise in community-building, albeit in fledgling state. His child is probably a member of several ad hoc chat groups, some created by him, and others by friends. Each group is identified and its members' names (or pseudonyms) are known to all. There is frequently some theme, activity, or common interest which connects its members and a leader (list owner) who controls admission and can administer punishment in the form of warnings or banishment. Many groups have their own language, usually a kind of shorthand, to supplement the abbreviations well-known to long-time Internet users[77] and there is liberal use of "emoticons", the punctuation-mark combinations which provide pictographs of the user's mood or intent.

Instant Messaging, as this form of community-creation is known, is not just a pastime enjoyed by a few American children. It has become the fastest-growing application amongst all PC users worldwide, according to an IDC report. [78] The number of consumer users is forecast to grow from 132 million in 2001 to more than 300 million in 2005. Over the same period, corporate user growth is predicted to be 140% over the same period, from fewer than 20 million to more than 225 million. By 2005, the annual aggregate number of consumer and corporate messages is expected to top 2 trillion, with

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[76] It is widely reported that simulation games—complex. real-life simulations involving family and societal issues which even parents might find interesting—are now the fastest- and best-selling computer games
[77] Examples: BTW (by the way); IMHO (in my humble opinion)
[78] Quoted in *Computerworld*, 6/26/01 www.computerworld.com, accessed 4/6/02

most of the traffic being generated by *ad hoc* project teams sharing information and agreeing actions.

But it is children who are the pioneers of cyberspace. A new study by the Pew Internet and American Life project[79] reports that 86% of all American college students have gone online as opposed to 59% of the general population. In a previous study[80], Pew reported that 78% of children between the ages of twelve and seventeen have gone online, so the number of people over college age who have diminishes to less than half.

This is interesting, but not surprising. Today's American college freshmen were born around the time the PC was introduced, and were around ten when the World Wide Web became available, so they have never really known a world without communicating computers available to most families and in many schools. The Pew study tells us that one-fifth of the college students began using computers when they were between five and eight, with a total of almost one-half (47%) having learned to use one before college. They use the Internet most often to communicate socially (42%) and do class work (38%.) Although they do use email to communicate with their professors, as John Seely Brown pointed out, they are fluent in the vernacular and, by doing, with the technology, and many are frustrated by their analog-minded professors whom, many feel, don't understand that there is more to a computer than just word-processing and email.

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[79] Steve Jones, *The Internet Goes to College: How Students are Living in the Future with Today's Technology* (Washington: Pew Internet and American Life Project, September 15 2002). Available from http://www.pewinternet.org
[80] Douglas Levin and Sousan Arafeh, *The Digital Disconnect: The Widening Gap between Internet-Savvy Students and their Schools* (Washington: Pew Internet and American Life Project, 2002). Available from http://www.pewinternet.org

The Media Lab at MIT has been involved since its inception in studying how children can learn and socialize using computers. Its well-known director, Nicholas Negroponte, has spoken often and widely on the subject. In 1998, the Lab sponsored an event called the Junior Summit,[81] bringing together a group of two hundred children under the age of sixteen from eighty countries, most of whom had been communicating with each other by email to set the meeting's agenda, select speakers, and decide what the meeting should symbolize.

As Benedict Anderson might have predicted, the first, and, it turns out, the most enduring act of this week-long meeting was to found a newspaper, The Junior Journal (JJ), which was published daily during the event and has come out monthly ever since, using technology developed by the Lab. Jack Driscoll, former editor-in-chief of the Boston Globe and now a Fellow at the Media Lab, acts as advisor to the editorial board of this and several other newspaper communities, as he calls them.[82] The JJ has an editorial board of twelve, and the editor's job rotates; there is no permanent person in charge, intentionally. As children surpass the age limit, they are replaced by others who are known to at least one member; their biggest fear is that an adult will try to get in, so they have an elaborate vetting process.

The current edition of the JJ was edited, online, by an Egyptian and a Greek boy, communicating entirely online. As Driscoll points out, the real sense of community comes

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[81] The author was a volunteer at this event and reports from first-hand experience.
[82] The information for the children's communities comes from an interview with Jack Driscoll on July 31, 2002, and subsequent communications with him, with community members, other Media Lab staff, and through email exchanges with several community members (who wish to remain anonymous.)

not just from individual articles submitted, but in evolving a common editorial policy. The JJ now has more than three years—and forty-six issues—of shared history, and the succession process seems to be working smoothly. In recent issues, there have been extraordinary articles about child soldiers in Sierra Leone written by a child who was one, and an editorial on the war in Kashmir jointly written by an Indian and a Pakistani. This is not just an 'imagined' community, but one which unites diverse cultures and backgrounds into a shared present, giving its members a new way to think about themselves, and relate to others, in profoundly new ways, to echo Anderson.
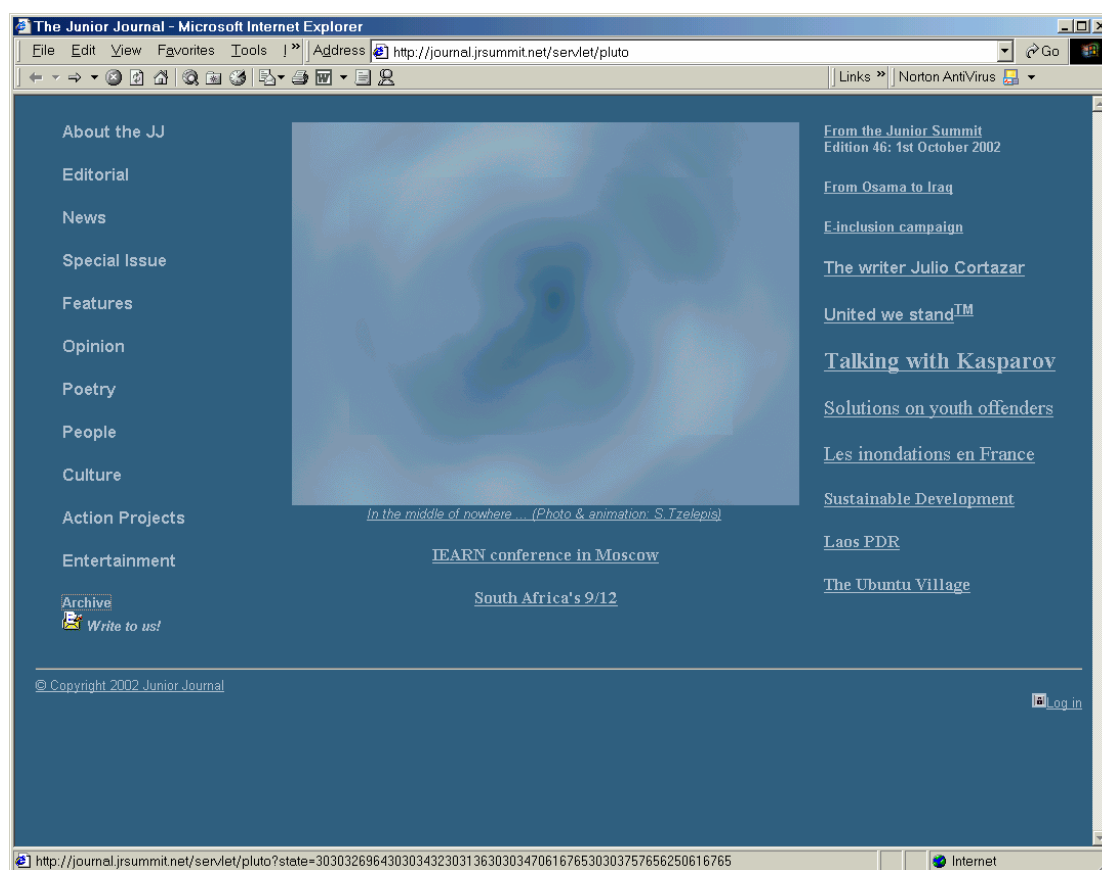

Figure 1: October, 2002 edition of *The Junior Journal*[83]

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[83] http://journal.jrsummit.net/servlet/pluto This link will connect to the latest edition.

The JJ has spawned its own 'community' of similar efforts around the world. New journals are being created in Brazil, Mexico, and Costa Rica. But the most impressive effort is a project called 'La Fragola,' a pan-Italian student publishing effort being sponsored by *La Repubblica*, a major Italian newspaper. More than one thousand Italian schools responded to an idea put forward by the newspaper last year, and La Fragola has become, according to its sponsor, the most widely-read online newspaper in Italy, and it has only existed for a year-and-a-half.

La Fragola has not only been successful in terms of numbers of contributors, it has also become involved in setting the national agenda. Its most notable recent effort is entitled "8 settembre 1943: la rifondazione della patria." Inspired by an exhibition in Rome in early 2001, this has become a nationwide examination of the re-founding of the Republic of Italy after the expulsion of Mussolini and the King in 1943. It is entirely student-led, and it is an honest and open portrayal of Italy and the Italians during the war.

Figure 2: La Fragola Italian independence project[84]

While other online communities are being formed around newspapers or other communications vehicles (primarily online newsletters) by other groups of common interest or definition, few if any seem to have the impact and immediacy of those being developed by children. Perhaps it is because of their age or their fearlessness with the technology; it is probably a combination of factors. Nevertheless, it will be interesting to see how the generation which is growing up never having known a computer-less world will conduct business and the affairs of government and state once they come of age.

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[84] http://www.kwscuola.kataweb.it/Speciali/kws_speciali_HP/0,2828,7813,00.html

IV. Current State of and Trends in Internet and Communications Technology

Introduction: Technology and Tulips

It is impossible to examine the current state of 'new' technology without acknowledging the current crisis in the technology industry and its companies, and without considering the impact on future technology development that might occur because of it and the broader economic environment. The headlines say that the Internet boom is over. Those who predicted that the world as we know it would be forever changed have been at least embarrassed or, at worst, financially ruined or put out of a job. The 'gurus' of telecommunications—George Gilder[85], Bernie Ebbers of Worldcom, Jack Grubman of Salomon SmithBarney, Chris Gent of Vodaphone, Hans Snook of Orange, and Ron Sommer of Deutsche Telekom—have been dismissed or silenced. The hardware and software billionaire-visionaries like Larry Ellison of Oracle and Bill Gates of Microsoft, having invested heavily in the 'e-commercial' future of the Internet, are wondering where to place their next bets, since their once-nimble companies are now more like supertankers, where course and speed corrections need to be transmitted to the engine room miles before they are needed.

Chief Executives like Michael Armstrong of AT&T, Steve Case of AOL, Gerald Levin of TimeWarner, Michael Eisner of Disney, Jean-Marie Messier of Vivendi and Thomas Middlehoff of Bertelsmann, the prophets of media convergence, those who believed and bet heavily that content providers (movie and record companies), process

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[85] A well-known thinker and writer on the technology of telecommunications, whose newsletter became a bible for investors in the 1990s.

controllers (studios and publishers) and network owners (broadcast and cable television, America OnLine) could join forces to dominate the world's screens—computer, television and motion-picture—were put on pedestals. All are either gone, or going, or are at least lying low.

Individuals and institutions subscribed to share offerings in new and merged companies in record numbers. Now, they are either ruing their imprudence or bringing suit against their financial advisors who, like Grubman, may or may not have been colluding with the companies they were paid to analyze 'independently' and whose shares they may have recommended buying even when they were careening down a slippery slope towards valuelessness.

It doesn't take a statistical study to conclude that the Internet is no longer the news it was in the frenzied run-up to its overvaluations and vaunted by many as the mechanism which would allow true, borderless globalization to unite the world's peoples. In fact, technology 'bubbles' have occurred throughout history, where creative, sometimes accidental uses for new technologies have inspired investors to flock to new technologies in droves, with whatever regard they might have for the long-term implications of their decisions overwhelmed by the greed of the moment. As no less an authority than Alan Greenspan, Chairman of the Federal Reserve, states: "Human psychology being what it is, bubbles tend to feed on themselves, and booms in later stages are often supported by implausible projections of future demand."[86]

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[86] Richard W. Stevenson, "To Greenspan, 90's Bubble was Beyond Reach of Fed," *The New York Times*, 8/31/02, C3

There is an important lesson to be learned from what Greenspan says, perhaps best illustrated in analogy by the hyper-investment in tulips in the Netherlands in the mid-17th century.[87] For a brief period in the 1630s tulips became so popular that they were speculated on by large and small investors alike, with particularly exotic varieties commanding exorbitant prices. A single bulb once sold for "two wagon loads of wheat, four loads of rye, four fat oxen, eight fat swine, twelve fat sheep, two hogsheads of wine, four barrels of beer, two barrels of butter, 1,000 pounds of cheese, a marriage bed with linens, and a sizable wagon."[88] The inevitable crash came in 1637, when the Dutch government declared that tulips were products, not investments. As such, they had to be paid for in cash and could no longer be used as collateral.

Selected Technology Trends

While no such governmental edict has come down in the case of the Internet or other telecommunications issues, the bursting of the techno-share bubble has its similarities to the tulip crisis. The news coverage of both the run-up and the collapse have somewhat obscured three of the Internet's ongoing achievements and trends: there is sufficient infrastructure in place to allow the Internet to operate cost-effectively and to continue to grow; there are a number of new or improving technologies which are making it easier than ever to communicate and form communities of common interest--most of whose use is dominated by children and young adults; and, while the number of users has

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[87] A useful and well-documented synopsis of the tulip craze is: Mark W. Tarses, *Tulipmania.com: A Warning from History for Dot-Com Investors*(The Sunway Newsletter, January 1999, accessed August 29 2002); available from http://www.sunwayco.com/news10.html.
[88] Ibid.(accessed).

peaked in the United States and Europe, Asia, the Middle East and Africa are experiencing strong growth in users and in web sites. Comments on each point help put the current state of technology in better perspective.

First, despite the fact that some of the companies have built the backbone of the Internet and still own much of it are having difficulties, the powerful technologies and, perhaps more importantly, the extensive infrastructure of networks, nodes, cables, and wireless-transmission facilities built during the last decade are products in place and are being bought and sold as such, not as speculative investments, but as either commodities (as in the case of bandwidth) or as profit-generating enterprises (as in the case of value-added services.)

According to recent published news reports, UUNet, that part of Worldcom which owns and operates more than 40% of the U.S. Internet infrastructure as well as having significant holdings in the rest of the world,[89] will survive the current crisis, as will the recently-reorganized AT&T, which owns about 15%. A sure sign of health is that there are active commodity markets specializing in bandwidth,[90] ensuring maintenance and development of backbones, routers and networks—the skeleton and organs of the Internet.

There is also plenty of capacity in the system, companies having laid much more fiber that currently required, and the use of broadband connections is growing fast in parts of the developed world other that the U.S., where there are reported to be more than ten

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[89] Network World Fusion Newsletter,, 05/01. Available from
http://www.nwfusion.com/newsletters/isp/2001/00846039.html
[90] E.g. Band-X, Arbinet, and RateXchange—all Internet-based

million cable broadband users connected already.[91]   For instance, according to OFTEL,

the UK telecommunications regulator, the number of UK broadband connections has

doubled in the last year to one million subscribers, the fastest growth rate in Europe. What

does increased broadband penetration signify?   High-speed connections are needed for

'always-on' status, useful for Instant Messenger, for new, online synchronous classroom

technologies which are revolutionizing distance learning, and for other innovative uses of

the Internet, all of which have a direct bearing on community formation.

This leads to the second point: there is no lack of innovation in Internet and

communications technology development. Take mobile phones, for instance, where most

innovation occurs outside the U.S. In Japan, where home Internet usage development has

been slow, mostly due to the high cost of connecting by fixed-line telephone, mobile phone

use for messaging has skyrocketed. According to *Japan Today*, there are more than 50

million Internet-enabled mobile phones—80% of all mobiles.[92]   In parallel, subscription

services providing a wide range of services (e.g. personal messaging, banking, restaurant

reservations) are very popular. NTT DoCoMo's I-mode service has almost 35 million

subscribers, and other services bring the total to more than 50 million. The same type of

online communities which have evolved in the U.S. have done so on mobiles in Japan,

only the technology limits users to one-to-one conversations. However, the convergence

of mobile phones, hand-held computers and PCs will hasten the development and

deployment of such systems and services across all platforms, and we are about to see

waves of such services introduced across Europe.

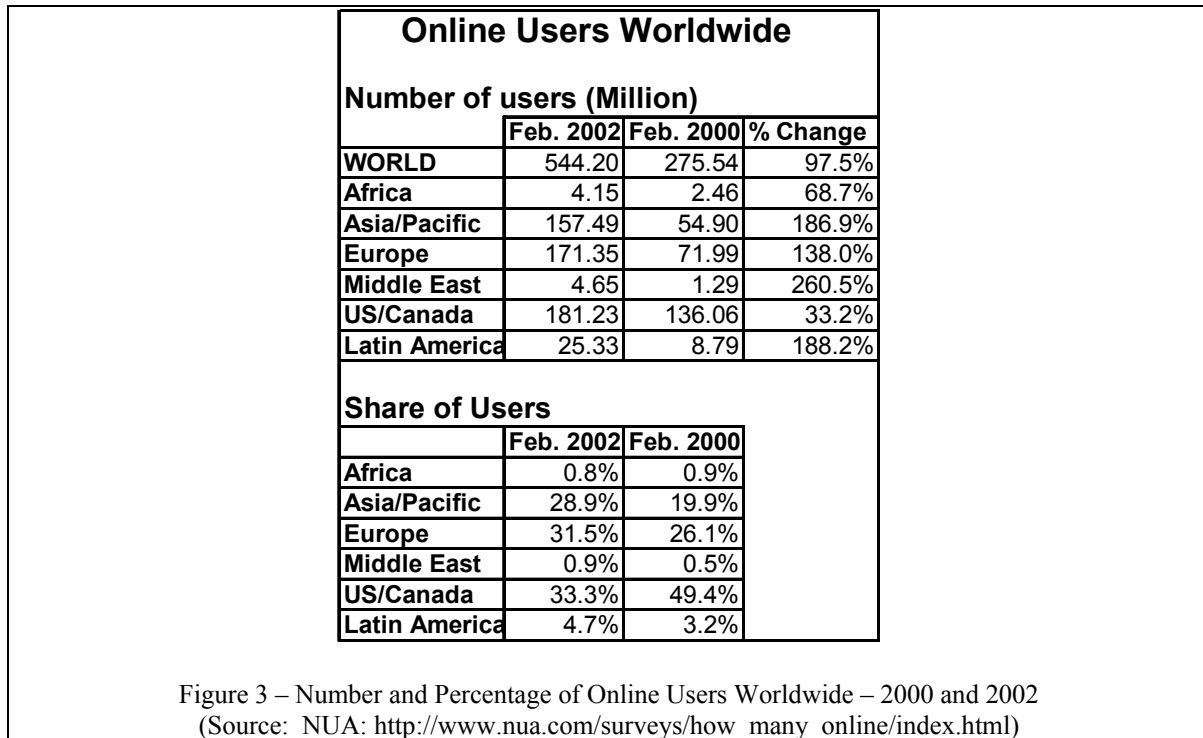[91] See www.nua.com, an excellent aggregator of Internet statistics from a variety of credible sources
[92] http://www.nua.com/surveys/?f=VS&art_id=905358440&rel=true

In the U.S., there is strong growth in the usage of new wireless technology, known informally as WiFi, which allows users to access the Internet within several hundred feet of an inexpensive, increasingly-common home network node. Given the rate at which wireless technology has evolved, both for telephones and computers, it is reasonable to expect that inexpensive, wireless networks will enable a host of new mobile computing applications at much greater distances from wired network nodes.

Closely related to this is the development of what is known as Internet Protocol Telephony (IPT.) This is the use of the Internet to carry regular telephone traffic, currently limited to a handful of users of the public Internet due to undependable quality and difficulty of use. All this is changing, rapidly, primarily due to the fact that IPT calls are free (at the moment,) and a number of business and organizations are using such systems internally—and internationally--across their own private 'Internet-works.' Once IPT takes off, and there is every indication that it will, the telephone companies will no doubt become involved once a significant portion of their business becomes cannibalized. The ensuing, head-on clash between the wired, monopolistic, traditional telephone companies and their much-more-nimble, Internet-savvy competitors will undoubtedly lead to new regulatory regimes internationally, but that could take years.[93] In the meantime, as the technology improves and if IPT take up increases exponentially, there could be interesting consequences for community-building worldwide, largely driven by the ability to add

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[93] For an understanding of how this regulation might evolve, see Milton L. Mueller, *Ruling the Root: Internet Governance and the Taming of Cyberspace* (Cambridge, MA: MIT Press, 2002)., and Lawrence Lessig, *The Future of Ideas: The Fate of the Commons in a Connected World* (New York: Random House, 2001), 26-33.

voice, cheaply, to the mix of text, audio, and video already available via web sites and email.

Online Users Worldwide

Number of users (Million)

	Feb. 2002	Feb. 2000	% Change
WORLD	544.20	275.54	97.5%
Africa	4.15	2.46	68.7%
Asia/Pacific	157.49	54.90	186.9%
Europe	171.35	71.99	138.0%
Middle East	4.65	1.29	260.5%
US/Canada	181.23	136.06	33.2%
Latin America	25.33	8.79	188.2%

Share of Users

	Feb. 2002	Feb. 2000
Africa	0.8%	0.9%
Asia/Pacific	28.9%	19.9%
Europe	31.5%	26.1%
Middle East	0.9%	0.5%
US/Canada	33.3%	49.4%
Latin America	4.7%	3.2%

Figure 3 – Number and Percentage of Online Users Worldwide – 2000 and 2002
(Source: NUA: http://www.nua.com/surveys/how_many_online/index.html)

Last, those who look for the Internet to be a real global community can take some encouragement from the statistics in Figure 2. First of all, there are more than a half-billion users, the number having doubled in the last two years. The U.S. and Canada's growth rate has slowed down to one-third of the worldwide rate as saturation nears, and North America represents only one-third of the world's users, down from one-half only two years ago. Most importantly, the number of users in Asia and Europe almost equals that of North America, whereas only two years ago, Asian users were slightly more than one third and Europeans one-half as many. And, the number of women users in the U.S.—

still the bellwether market in size and trends—is growing faster that that of men, with women now accounting for 52% of home Internet users.[94]

Two areas where barriers to access have been great—Africa and the Middle East—illustrate different phenomena. The absolute number of connected Africans is growing, most probably in South Africa or in the cities of sub-Sahara, although it is still a very small fraction of the population. Poverty, lack of telephone lines, and a limited amount of businesses are the major contributing factors. It may turn out that the wireless technologies and IPT may have their biggest impact in poor, under-populated countries like those in Africa; one of the reasons that Sweden and Finland have such high mobile-telephone penetration is that in vast, sparsely-populated areas of their countries, primarily in the north, it is more cost-effective to offer mobile service than it is to string cable. It is not beyond reasonable hope that the next stage of development for these technologies may be deployable in Africa.

In the Middle East, however, the growth rate is the highest in the world, albeit from a small base. How small? A recent UNDP report puts the number of computer owners at 1.2% of the population, with Internet usage at 0.6%.[95] The events of 9/11/01 could lead to some speculation as to why the numbers are going up; the more likely reasons are that the governments of some of the more restrictive states have seen that there is more to be gained by letting people have access to the Internet than by not doing so. While they can still impose censorship on information or communities that are offensive to Islam, trying to

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[94] Nielsen NetRatings, from NUA (www.nua.com/surveys)
[95] *The Arab Human Development Report 2002* (New York: United Nations Development Program, 2002).

do so on the Internet is like cutting off one of the Hydra's heads: for every site that is banned, two new ones will replace it, and people will find ways around whatever restrictive measures are put into place. In any case, the UNDP cites improved connectivity, with groups both inside and outside the Arab world, as crucial in solving one of the area's biggest crises: the knowledge and education gap.

V.   Conclusion

If one takes the discussion of 'community' presented at the beginning of this paper—the comfort of knowing what community you are a part of and knowing where it is and what it stands for—and examines it in light of the rapid communications technologies of the last quarter-century, then it is not at all difficult to see where the potential lies. Examples of technology-aided community development are abundant, and many are promising.   At present, most of them are in the developed world, but, as discussed, the constant press of technology development may well open up opportunities in the developing world as well. The technological limitations of growth seem to be diminishing fast enough; the challenge is to ensure that other limitations do not block progress.

The four elements of community development discussed in this paper—identity and culture; communications, networks and language; visualization, and facilitation of action--can be shown to be, at minimum, influenced and supported, and, at most, enhanced and transformed by technology developments. One need look no further than the children of Italy for a good illustration of the impact of technology on community-building.   The mayor of Rome has been quoted as saying that the children responsible for this paper are

setting the national agenda with their stories and their editorials. If so, then they have succeeded in having a major impact on their country.

La Fragola and its young editors are doing exactly what Massimo d'Azeglio said needed to be done at the nation's founding moment: making Italy reflect on its identity through examination of a pivotal moment in its modern history, and acquainting or reminding Italians what it is to be Italian. In meeting each other online, they are indeed discovering what it is to be a Sicilian, a Sard, a Venetian, or a Roman, perhaps in ways that they could never achieve in a school, a café or on a playing field. They are learning about and studying their own historical culture by sharing their current culture and its many regional variations which make Italy so diverse.

The aspect most influenced by the Internet is communications, networks, and language. The Italians have been among the most enthusiastic user of 'telefonini,' as they call mobile phones, but not just for talking. The children of La Fragola can also send each other short messages on their mobiles, as well as by computer. Italy is at the forefront of developing wireless computer applications which will integrate the two, and one can only imagine what creative and avid users will do when that is possible. The rate at which children learn by doing will ensure that any enhancements will be quickly incorporated.

The world in which La Fragola exists is a visual one. The name, 'fragola,' means strawberry, and a big red one is their logo. This is, in Anderson's terms, an imagined community, but for children it is also a safe learning space. This is an important point, and

one which the popular press often overlooks when it talks about the dangers lurking online. The programs most often used by children, like Instant Messenger and simulation games, are their playgrounds and meeting spaces, and they see them as such.

While no connected systems can ever be said to be 'completely' secure, there are a number of ways that responsible parents can ensure that their children are safe from unwanted intruders. This is important, because the imagined places of cyberspace are what help make it such a powerful medium for creativity, especially for children, and children should feel free to experience them. They have a much more developed sense of imagery than adults, and almost everyone involved with the children's communities cites the positive aspects of this effect on building a shared vision of a space which they can visualize together. Rheingold also mentions this effect in connection with the development of the WELL. It is also possible that cyber-mapping of online communities will have a developmental effect; focused research is being done in this area, and results are forthcoming.

The facilitation of action is most probably cyberspace's strongest contribution. All communities perform something in common, the extent to which they do depends more on the community's purpose than on the technology. The immediacy with which community members can share ideas, the choice of ways they can share them, and the potential to think and act both locally and globally are enhanced greatly by the Internet. Its ability to connect people, to display innovation in an almost-limitless choice of ways, and to give people a worldwide stage upon which their results can be seen and judged by a global

audience--all are important, and all have never before existed in such accessible and affordable ways.

There are a number of community activities with exciting potential which are just starting out, with some promise for the developing world. At the John F. Kennedy School at Harvard, two different groups of international women are starting to meet online to develop their ideas. One of them, Women Waging Peace, an organization of women from developing countries around the world, has just started a project with the U.S. Institute for Peace to use the Internet to develop their agenda online.[96] The World Bank has launched what it calls its Development Gateway, a place where people from developing countries can 'meet' to exchange ideas and to find out about new projects.[97] The community aspect here is that the Bank hopes to create independent country and interest-group gateways to allow people to talk in their own language(s) and focus on subjects relevant to their own circumstances.

There are plenty of unanswered questions, but the evidence is encouraging. As more new and useful technologies become available, there is no doubt that they will be put to use by communities worldwide. What will be most interesting is to see what happens when the generation which has grown up with computers assumes roles of responsibility, in public and in private. Perhaps the real test will be to see if and how they take their experience of online community-building and use it for broader purposes.

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[96] http://www.womenwagingpeace.net/
[97] http://www.developmentgateway.org/

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APPENDIX: Examples of Cybermaps
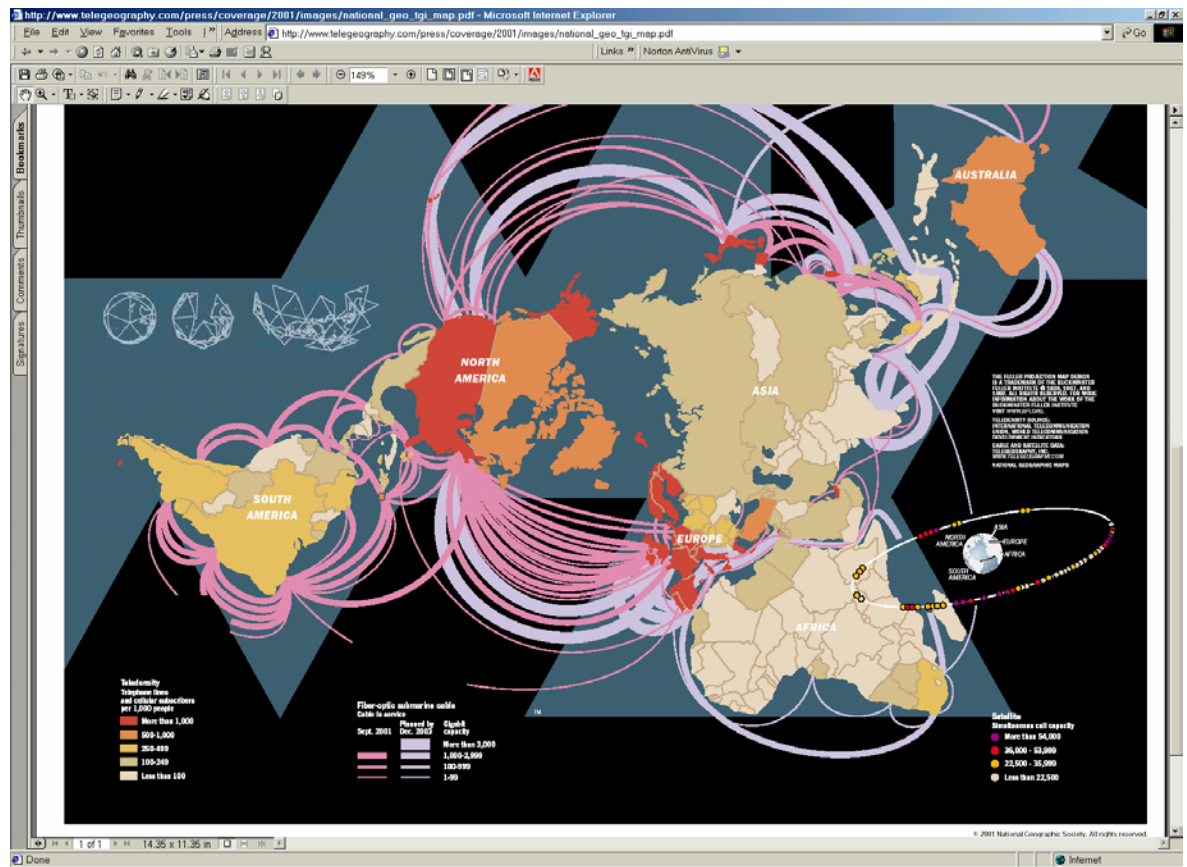
This figure appeared in National Geographic in 2001, and it depicts the density of terrestrial cable and satellite transmission call capacity in bold, sweeping bands laid out over a Fuller Projection of the world, coloring the countries to indicate numbers of fixed-line and cellular subscribers.[98] It also is one of the first maps to show, in broad form, the intercontinental communications links which connect global city-regions.

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[98] Available from http://www.telegeography.com/press/coverage/2001/images/national_geo_tgi_map.pdf. Downloaded 10/01/02
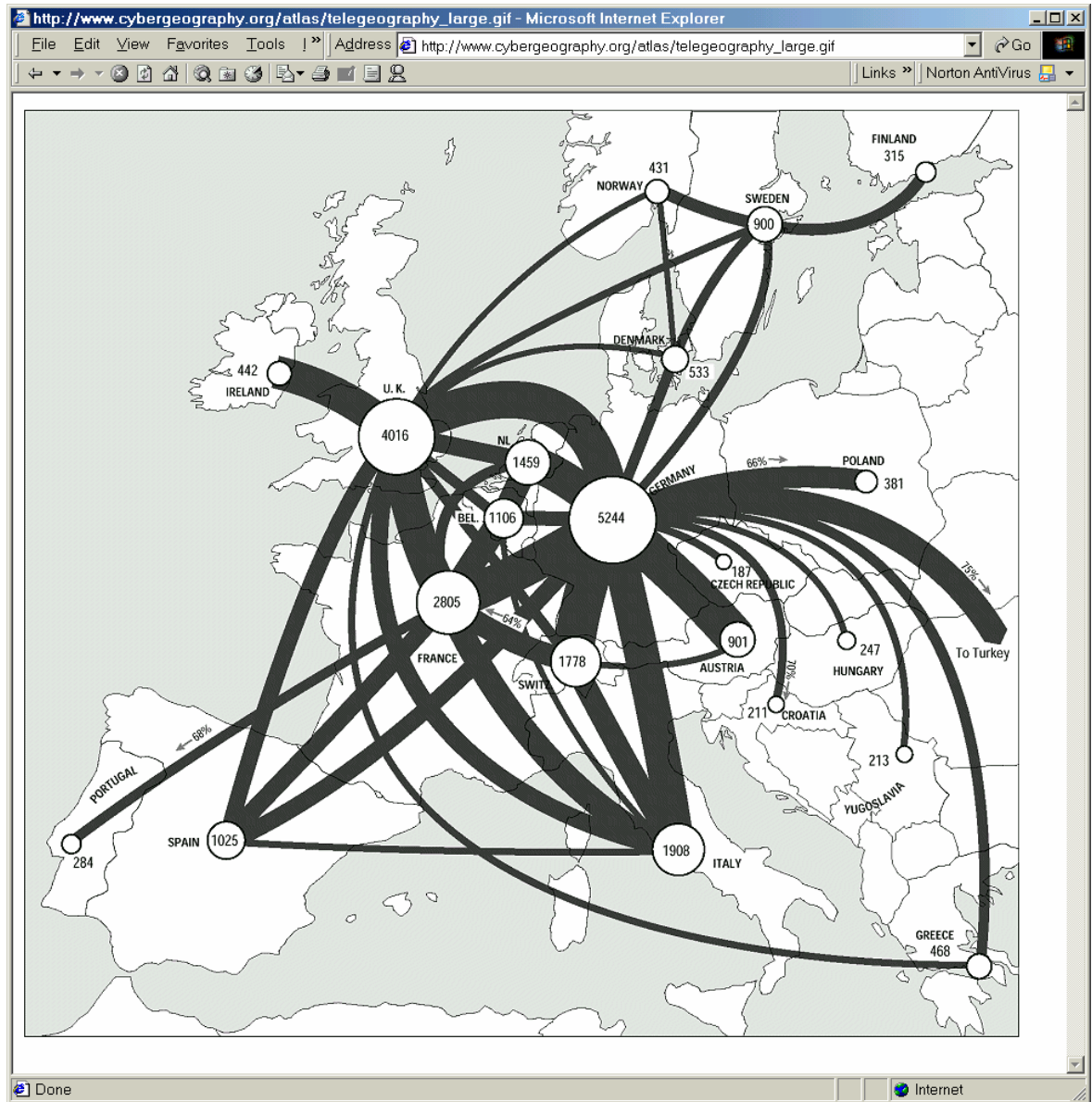
This figure shows both intra-European telecommunications flows for 1999 measured in minutes and, interestingly, arrows showing the 'balance of traffic' when flows go more heavily in one direction than the other. Much of the one-way flow is from large western European countries to Eastern Europe and may represent groups of immigrant workers calling home.[99]

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[99]Dodge and Kitchin, *Atlas*, 55.. Also available from
http://www.cybergeography.org/atlas/telegeography_large.gif
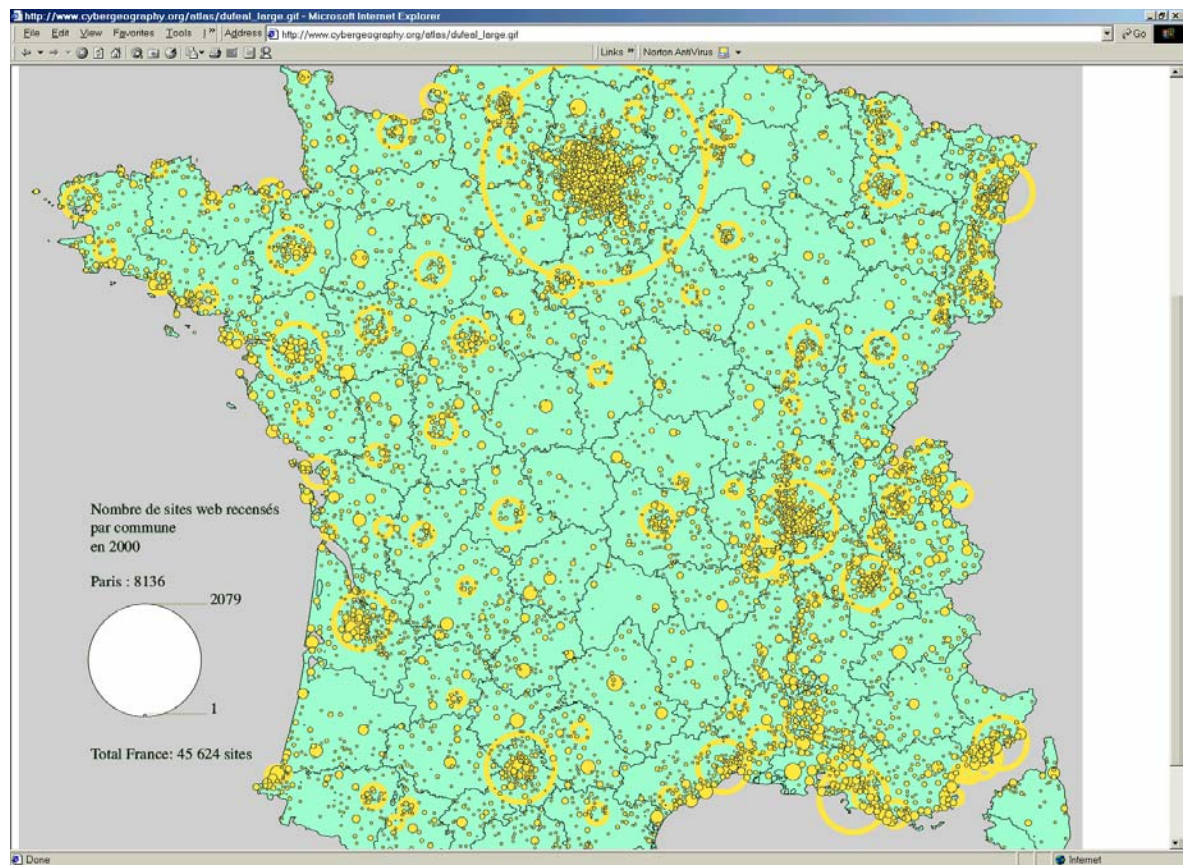
This is a map of the geography of websites in France in 2000 by a

researcher from the University of Avignon.[100] What is remarkable about this image

is the distribution of websites; there are dozens of website-intensive regions of a

country which, given the historic strength of Paris at the 'center,' might not have

been expected to show such a dispersion. This map, and scores more like it of

other regions[101], does an excellent job of conveying both the intensity as well as the

diversity of the growth of innovation as it is embodied in website development.

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[100] Available from http://www.cybergeography.org/atlas/dufeal_large.gif   Downloaded 10/01/02
[101] For a representative sample, see www.cybergeography.org; www.zooknic.com; or
www.telegeography.com
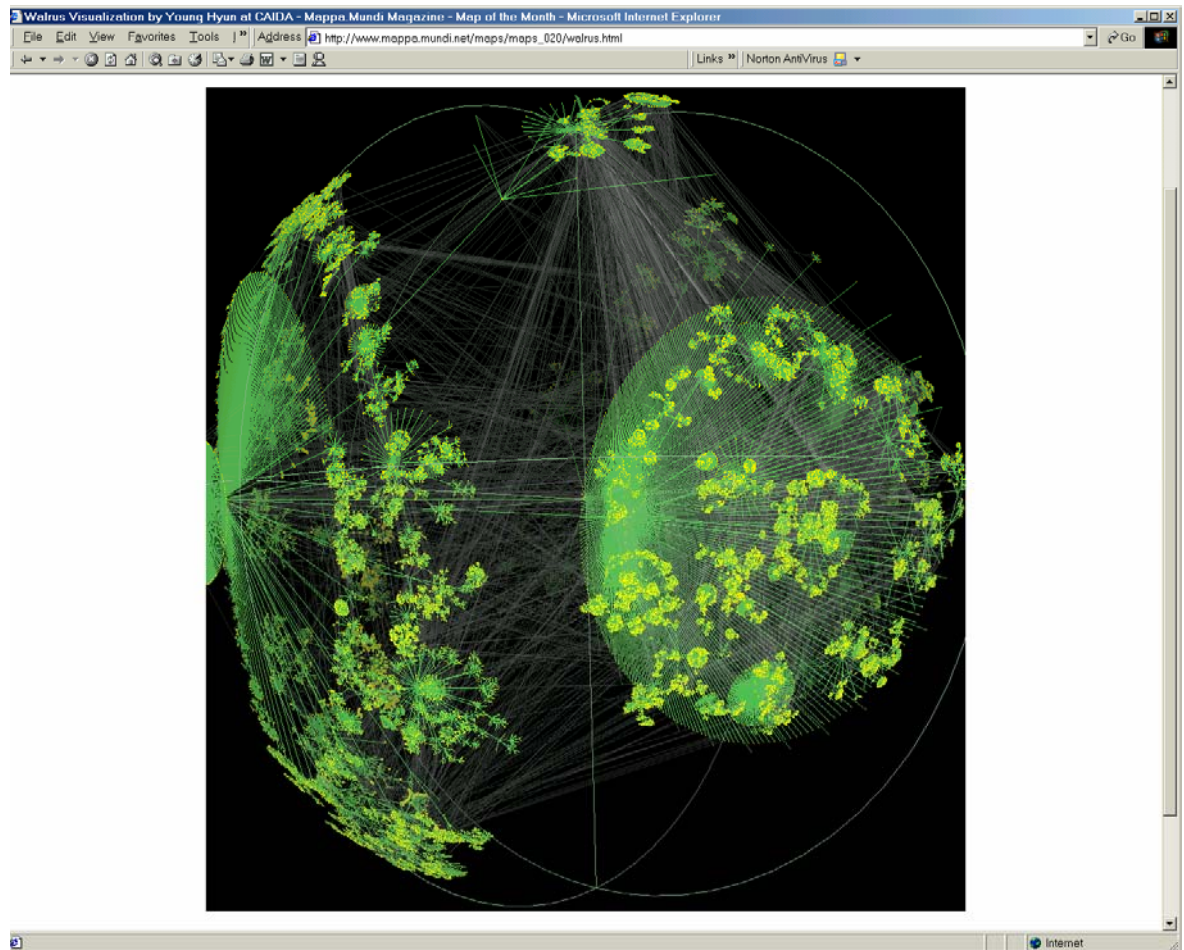
The topology of the Internet—date being sent from thousands of nodes via myriad links—makes for some of the strangest but most striking maps of cyberspace. This is a topological description of user information being projected in three dimensions in order to help analysts understand better how data is being routed through the Internet.[102] The extension of this type of approach to measuring linkages could lead to useful interpretation for policymakers.

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[102] www.mappa.mundi.net/maps/maps_020/walrus.html. Accessed 4/20/02