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Social Capital and ICTs:

Widening or reinforcing social networks?

Pippa Norris

McGuire Lecturer in Comparative Politics

John F. Kennedy School of Government
Harvard University
Cambridge, MA 02138
Pippa_Norris@Harvard.edu
www.pippanorris.com

Synopsis: What is the impact of newer information and communication technologies on social capital? In particular, does online participation serve to widen social contacts and expand bridging social capital or to reinforce homogeneous networks? To examine this issue, *Part I* sets out the theoretical framework, drawing upon Putnam's theory and the distinction between the role of 'bridging' and 'bonding' groups. *Part II* analyzes some of the evidence available from the United States, using the Pew surveys *The Internet and American Life,* conducted in 2001 to explore online communities. The study finds that online participation has the capacity to deepen linkages among those sharing similar beliefs, as well as serving as a virtual community that spans some generational divisions. *Part III* briefly speculates about whether we can generalize from this American evidence to other post-industrial societies, notably the Japanese case. The conclusion summarizes the key findings and considers their broader implications for the role of new technologies on social capital.

Pippa Norris is the McGuire Lecturer in Comparative Politics at Harvard University. The author of almost thirty books, some of the most recent include *Digital Divide: Internet Access, Information Poverty and Civic Engagement Worldwide* (New York, Cambridge University Press 2001) and *Democratic Phoenix: Reinventing Political Activism* (New York, Cambridge University Press 2002).

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The role of newer information and communication technologies, especially the Internet, has been regarded by many as having an important impact upon social capital, although there is considerable disagreement about whether technology will potentially exacerbate isolation in modern societies, by extenuating direct face-to-face relationships, or alternatively whether it is capable of reviving communities ties, by bolstering social networks. The growth of information and communication technologies has been one of the most notable phenomena during the last decade, especially within affluent post-industrial societies[1]. Many questions arise about the consequences of this development for social capital, defined by Robert Putnam as "*connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them*."[4]. In particular, how do traditional communities overlap and interact with virtual social networks? Can online communities become substitutes for traditional forms of collegiality and social interaction based on traditional face-to-face contact in families, firms and local communities? Will the 'digital divide' in access to new ICTs lead to social inequality within online communities? Can trust be engendered online, in the absence of all the usual contextual cues derived from social relationships? Moreover there is now growing recognition that all forms of social capital are not necessarily positive for society as a whole, with some types of tight-knit, closed, and socially homogeneous groups generating negative externalities. This observation leads to the specific focus of this study: In particular, *does online participation serve to widen contacts and expand 'bridging' social capital or to reinforce bonding networks of like-minded individuals and interests?*

To examine these issues, *Part I* sets out the theoretical framework, drawing upon Putnam's theory and the distinction between 'bridging' and 'bonding' groups. *Part II* considers evidence from the United States; in particular the Pew surveys *The Internet and American Life,* conducted in 2001 to explore the world of online communities. The study finds that online participation has the capacity to *deepen* linkages among those sharing similar beliefs, as well as to serving as a virtual community that *bridges* some generational divisions *Part III* speculates about whether we can generalize from this American evidence to other post-industrial societies, notably the Japanese case. The conclusion summarizes the key findings and considers their implications.

Part I: Putnam's Theory of Social Capital

A long tradition in sociological theory among writers such as Durkheim, Marx, Weber, Tonnies and Simmel has been concerned about the loss of community and the weakening of the face-to-face relations of *Gemeinschaft*, a theme revived recently in the work of Robert Putnam (2000). Here we shall focus on the way that Putnam expanded this notion in *Making Democracies Work (1993)* and in *Bowling Alone* (2000) by linking ideas of social capital to the importance of civic associations and voluntary organizations for political participation and effective governance[5]. In the definition and conceptualization used by Putnam, social capital is understood as both a

structural phenomenon (social networks) and a *cultural* phenomenon (social norms). This duel nature often creates problems associated with attempts to measure social capital that commonly focus on one or the other dimension, but not both. Four core claims lie at the heart of Putnam's theory.

(i) The societal consequences of social capital

The first claim is that *horizontal networks embodied in civic society, and the norms and values related to these ties, have important societal consequences*, both for the people in them and for society at large, producing both private goods and public goods. In particular, networks of friends, colleagues and neighbors are commonly associated with the norms of generalized reciprocity in a skein of mutual obligations and responsibilities, so that dense bonds usually foster the conditions for collaboration, coordination and cooperation to create collective goods. The shared understandings, tacit rules, agreed procedures, and social trust generated by personal contact and friendships are believed to make it easier for people to work together in future for mutual benefit: whether fundraising for a local hospital, sharing machinery at a local agricultural cooperative, running a childcare center or battered women's shelter, or discussing plans from a local developer. Roladex networks can therefore be regarded as a form of investment, like financial or human capital, since social connections create further value, for both the individual and the group. Since the value of social capital exists in the relations among people, measurement needs to be at societal level, and it is far more elusive than financial investment in company shares and factory machinery, or even educational investment in cognitive skills. For this reason some economists like Arrow express reservations about using the term [6]. But it seems reasonable to regard social capital as productive, analogous to physical or human capital, if it facilitates the achievement of certain common ends and engenders cooperative behavior that otherwise would not have been possible. Organizations in civic society like unions, churches and community groups, Putnam suggests, play a vital role in the production of social capital by bridging divisive social cleavages, integrating people from diverse backgrounds and values, promoting 'habits of the heart' such as tolerance, cooperation and reciprocity, thereby contributing towards a dense, rich and vibrant social infrastructure.

(ii) Types of social capital

Yet in Putnam's most recent work on social capital (2002), he argues that local networks and civic associations usually strengthen social cohesion and serve a positive function for society as a whole, but he acknowledges that another darker downside exists in community life. To understand this phenomena Putnam draws an important distinction between *'bridging'* groups that function to bring together disparate members of the community, exemplified by mixed-race youth sports clubs in South Africa or the Civic Forum in Northern Ireland, and *'bonding'* groups that reinforce close-knit networks among people sharing similar backgrounds and beliefs. In Putnam's words: *'Bridging social capital refers to social networks that bring together people of*

different sorts, and bonding social capital brings together people of a similar sort. This is an important distinction because the externalities of groups that are bridging are likely to be positive, while networks that are bonding (limited within particular social niches) are at greater risk of producing externalities that are negative." This conceptual distinction should be seen as a continuum rather than a dichotomy, since in practice many groups serve both bridging and bonding functions, but networks can be classified as falling closer to one end of this spectrum or the other.

Heterogeneous local associations (such as PTAs and the Red Cross) are believed to have beneficial consequences for building social capital, by generating interpersonal trust and reinforcing community ties. Homogeneous bonding organizations can also serve these positive functions, but the danger is that they can also exacerbate and widen existing social cleavages, especially in pluralist societies splintered by deep-rooted ethno-national, ethno-religious or racial conflict. The dysfunctional types of bonding networks are exemplified by the Ku Klux Klan in Mississippi, La Cosa Nostra in Sicily, or the IRA in Belfast (see the discussion in Portess and Landholt 1996; Edwards and Foley 1998). This distinction raises important questions about how best to promote bridging social networks. One potential difficulty is that in deeply divided cities like Belfast, Johannesburg or LA, if local neighborhoods are socially homogeneous, then associations within each area are likely to reflect the background, beliefs, and interests of the predominant group within each community. New technologies could be one important mechanism to overcome these limitations, if these can be used to promote bridging groups where territorial communities of place are replaced or supplemented by online communities of identity.

(iii) The political impact of social capital

Moreover Putnam goes further than other contemporary theorists in arguing that bridging *social capital has significant political consequences*. The theory can be understood as a two-step model of how civic society directly promotes social capital, and how, in turn, social capital (the social networks and cultural norms that arise from civic society) is believed to facilitate political participation and good governance. In particular, based on his analysis of Italian regional government, he claims that abundant and dense skeins of associational connections and rich civic societies encourage effective governance. The reasons underlying this relationship remain underdeveloped theoretically, but it is suggested that this is because associations have internal effects, instilling in their members norms and values such as collaboration and shared responsibilities, while there are also external effects on the wider polity, as pluralists have long argued, in terms of interest articulation and aggregation[7]. In democracies rich in social capital, Putnam argues, watchful citizens are more likely to hold elected leaders accountable for their actions, and leaders are more likely to believe that their acts will be held to account. Civic society and civic norms are believed to strengthen connections between citizens and the state, such as by encouraging political discussion and mobilizing electoral turnout. When the performance of

representative government is effective, then Putnam reasons that this should increase public confidence in the working of institutions like legislatures and the executive, and also maximize diffuse support for the political system[8]. Good government is believed to foster strong linkages between citizens and the states that promote the underlying conditions generating civic engagement and participatory democracy[9]. The central claim is not that the connection between social and political trust operates at the individual-level, so that socially trusting individuals are also exceptionally trusting of government, and indeed little evidence supports this contention[10]. Rather, the associations between social and political trust should be evident at the *societal* level, as social capital is a relational phenomenon that can be the property of groups, local communities, and nations, but not individuals. *We* can be rich or poor in social capital, I can't.

(iv) Technology and the decline of social capital in America

Lastly, in *Bowling Alone* Putnam presents the most extensive battery of evidence that *civic society in general, and social capital in particular, has suffered substantial erosion in the postwar years in America*. Putnam considers multiple causes that may have contributed towards this development, such as the pressures of time and money. But it is changes in technology and the media, particularly the rise of *television entertainment* as America's main source of leisure activity, that Putnam fingers as the major culprit responsible for the erosion of social connectedness and civic disengagement in the United States, with the effects most profound among the younger generation[11]. In America during the 1950s, he argues, leisure gradually moved from the collective experience characteristic of the movie theatre, urban street summer stoop, local diner, and town hall meeting to become privatized by the flickering light of the television tube. The privatization of leisure has led, he suggests, to a more deep-seated retreat from public life.

In his latest comparative work, Putnam (2002) is cautious about extending these claims to suggest that similar trends are evident in other post-industrial societies such as Britain, Sweden, and Japan. Yet the lack of systematic cross-national evidence is puzzling since these countries have also experienced the rise of entertainment television since the late 1950s. If TV is indeed correct diagnosed as the underlying cause of any erosion of social connections in America, there should be some evidence of a comparable fall in social capital in other postindustrial societies. When it comes to the specific role of the Internet, *Bowling Alone* is agnostic about the long-term effects of new information and communication technologies on social networks and community life, stressing that this remains an open question. Although use of the Internet has risen rapidly during the last decade in affluent nations, he emphasizes that we still have a limited understanding of its impact; much of the research during the early to mid-1990s has been normative rather than empirical. The growth of the Internet population has generated a substantial literature theorizing about the potential consequences of virtual communities for exacerbating or overcoming the 'tragedy of the commons' (Rheingold 1993; Schuler 1996;

Tsagarousianou, Tambini and Bryan 1998; Jones 1998; Bimber 1998). Empirical research has examined many dimensions of online communities including in-depth ethnographic studies of particular groups like 'The Well'; content analysis of participants in Internet list-servs and chat rooms; and studies of the most effective features of community organization websites (see Holmes 1997; Jones 1998; Hill and Hughes 1998; Davis 1999; Kim 2000; Gaines and Shaw 2001; Preece 2001; Hafner 2001; Norris 2001). Nevertheless it is often difficult to generalize from studies of specific online communities to more general practices in the American population as a whole, and the way that early adopters used the Internet in the mid-1990s might be very different to its functions in mainstream society today.

The Internet and Social Capital

Within this theoretical framework, can we develop some specific testable propositions about the role of new technologies on bridging and bonding forms of social capital? Theoretically there are intriguing possibilities. On the one hand, certain features of the digital world, especially its fragmented hyper-pluralism, should encourage interaction and exchange within social groups sharing similar beliefs and values. The Internet is a medium where users have almost unlimited choices and minimal constraints about where to go and what to do. Commitments to any particular online group can often be shallow and transient when another is but a mouse-click away. Most purely online communities without any physical basis are usually low-cost 'easy-entry, easy-exit' groups. To avoid cognitive dissonance it is simpler to 'exit' rather than working through any messy bargaining and conflictual disagreements within the group. Like adherents to particular leftwing or rightwing talk radio shows, or readers of highly partisan newspapers, the result of participating in online communities could be expected to reinforce like-minded beliefs, similar interests, and therefore *ideological* homogeneity among members. So many interest groups, organizations and associations are available on the Internet that it is exceptionally easy to find the niche website or specific discussion group that reflects one's particular beliefs and interests, avoiding exposure to alternative points of view. Thousands of networks are devoted to bringing together like-minded souls ranging from anarchists, hippies and vegetarians to skinheads, and survivalists. A cornucopia of discussion groups span everything from the issues of abortion and afrocentrism to welfare reform and xenotransplantation. You can monitor human rights with Amnesty International, the environment with Greenpeace, or the state of democracy with the National Democracy Institute. Or, should you be so inclined, you can visit hundreds of policy think tanks in D.C. ranging from the Heritage Foundation and the Cato Institute to the Brookings Institution and the Twentieth Century Fund. Hyper-pluralism and over-specialization among marginalized groups can be expected to encourage bonding among regular members. These considerations lead to the first hypothesis that *participation in online groups is likely to strengthen social bonds among those with homogeneous interests and backgrounds*.

Yet this is far from the whole story because, on the other hand, certain features of the Internet could be expected to bridge traditional social divides. Textual communication via the online world strips away the standard visual and aural cues of social identity – including those of gender, race, age, and socioeconomic status - plausibly promoting heterogeneity, where 'no one knows that you are a dog on the Internet' (Holmes 1997). Social psychologists suggest that this anonymity could be most important for marginalized populations who are otherwise isolated from cultural interactions outside of their group, such as single mothers working at home, gay men, or rural poor populations (McKenna and Bargh 1998). The digital divide in the early years of adoption hinders social diversity but the normalization of the Internet population in America, as access spreads more widely, should also promote greater inclusiveness for poorer and less educated sectors, as well as for women and ethnic minorities. The lack of barriers to entry means that once social groups are online, most virtual communities are fairly permeable to new members. This leads to the second alternative hypothesis that *participation in online groups is likely to strengthen social bridges among those with heterogeneous interests and backgrounds*.

[Figure 1 about here]

These considerations lead to the typology of the societal function of online communities outlined schematically in Figure 1. The classification assumes that pure bonding groups are most likely to occur online where social and ideological homogeneity overlaps, deepening networks among people sharing similar backgrounds and beliefs. In contrast, where the Internet draws together those from diverse social backgrounds and beliefs, widening contacts, the typology suggests that this generates pure bridging groups. Yet the simple propositions that we have outlined do not take into account any intervening factors that might be important in this process, notably (a) the type and depth of the social cleavage, such as divisions by gender, race, or class, and (b) the type of online group, such as religious, union, or local community groups. We know that the social background and ideological beliefs of members in non-virtual communities typically vary in predictable ways, for example with more men usually joining sports clubs, trade unions, and political associations while more women often belong to religious organizations (Norris 2002). Along similar lines, online communities could be expected to reflect social differences as well.

Part II: Survey Evidence

To explore these propositions further we can turn to the Pew *Internet and American Life, a* project that has developed perhaps the more detailed series of daily tracking surveys investigating the practices and habits of Internet users in the United States (for details see Horrigan, Raisie and Fox 2001; www.pewinternet.org). In 17th January-11th February 2001 Pew conducted a special survey on *Communities and the Internet* including multiple items monitoring Internet use, behavior and attitudes towards both online and local communities, along with the standard socio-demographic factors[12].

To learn about people's experiences of the Internet the Pew survey asked whether the Internet had helped people to do various different things, such as *'Becoming more involved with groups and organizations you already belong to', 'Finding people or groups who share your interests' or 'Connecting with people of different ages or generations.'* Factor analysis showed that these seven items fell into two principle dimensions, representing how far people believed that their Internet experience helped them in either *bridging* social divisions of generation, race and class or *bonding* with people with similar interests and beliefs (see Table 1). These items were recoded and summed to create separate bridging and bonding scales, standardized to 100-points for ease of interpretation.

What types of online groups promote experience of bridging and bonding?

The first issue is how far different types of groups like unions, community associations and sports clubs proved stronger at promoting the experience of the bridging or bonding functions of the Internet. The Pew survey asked how far people used the Internet to have any contact with, or to get any information from, a range of thirteen different types of online groups. Respondents were also asked to nominate which of these groups they were in contact with most often. Table 2 and Figure 2 shows the mean score on the perceived bridging and bonding function of the Internet as experienced by users of different types of online groups. Overall contact with online groups was believed to serve both functions, but the experience was slightly stronger for reinforcing bonding (deepening contact with people of similar beliefs or interests) rather than for bridging (widening contact with people from diverse social backgrounds). There were variations by the type of group, as expected, with the experience of contact with ethnic-cultural groups and groups sharing a similar lifestyle rated highest in both functions. Many groups clustered in the middle of the distribution, while in contrast contact with sports groups, as a supporter or participant, was perceived to generate the least social benefits. Overall there was a strong relationship between these two functions (R^2=.77).

To see whether these differences among groups remained significant OLS regression models were run predicting the impact of contact with different types of groups on experience of the bonding or bridging functions of the Internet, including the standard social controls (for age, sex, education, income and race). The models in Tables 3a and 3b show that even after controls were introduced, contact with most groups remained a significant predictor of evaluations of the bridging or bonding functions of the Internet. People's sense of finding people who shared their own interests and beliefs strengthened if they were engaged in online groups such as those concerned with their religion, lifestyle, or professional associations. The pattern suggests that online contact does bring together like-minded souls, who share particular beliefs, hobbies or interests, probably due to the hyper-pluralism and ideological diversity widely evident on the Internet. Equally importantly, the joining many different types of online groups was also perceived

to broaden social contacts, allowing connections with different ethnic, class or generational groups, thereby expanding social diversity in American society.

[Table 3a, 3b and Figure 2 about here]

These results can be broken down further into the type of social diversity by comparing responses to the specific item that the Internet helped *'find people who share my beliefs*' against the three items monitoring whether the Internet helped connect with people from different racial/ethnic, economic, or generational backgrounds. Figure 3 shows that participation in most online groups did little to bridge racial divides in America, other than contact with specific ethnic-cultural organizations. Group contact was also fairly ineffective on bridging the socioeconomic or class divide. But online communities did seem to have greater capacity to cut across generational lines: those engaged in the online groups organized around lifestyles, ethnicity, community, hobby/interest and political associations found that the Internet helped to connect with people of different age groups. More groups fell into the mixed category (generating experience of ideological homogeneity and social heterogeneity) by age group than by class or race. The reasons for this could be the younger age profile of the Internet population, combined with the tendency for more middle-aged memberships in many traditional organizations, so that online groups became a generational meeting place.

[Figure 3 about here]

Part III: Trends in other Post-industrial Societies

Are there parallel trends among online communities in other affluent postindustrial societies, particularly in Japan, or is the pattern evident in the United States a product of this particular context? At present we lack systematic cross-national survey evidence of Internet uses that would allow us to make direct comparisons replicating the analysis in many other countries. Yet there are certain important reasons why it might be difficult to generalize from these U.S. findings to other societies.

First, patterns of social capital in the United States are highly distinctive. Evidence based on the World Values Survey in the mid-1990s comparing levels of social capital in many countries, discussed fully elsewhere (Norris 2002), suggests that American society is exceptionally rich in the number of civic joiners, as de Tocqueville observed centuries ago, as well as being moderately high in levels of social trust. Figure 4 summarizes the cross-national picture if we compare patterns of social trust and associational activism. Social trust was gauged by the standard item: *"Generally speaking, would you say that most people can be trusted (1) or that you can't be too careful in dealing with people? (0)"* The figure illustrates the proportion responding 'can be trusted' in each society. Associational activism was measured by the following item: "*Now I am going to read off a list of voluntary organizations; for each one, could you tell me whether you are an active member, an inactive member, or not a member of that type of*

organization?" The organizational activism scale added together whether people were active members (2), passive members (1), or not members (0) of any of the nine categories of voluntary organizations such as sports clubs, parties, unions, environmental groups, and professional associations. The list included a diverse range of types of voluntary associations, including 'traditional' groups as well as new social movements. The results illustrated in Figure 4 show that the United States is located in the middle far right of the illustration, with some of the highest levels of associational activism. The US is therefore located well away from the position of Japan, emerging as moderately high in social trust and yet a relatively non-joining society. The distribution of nations is intriguing and multiple factors may plausibly contribute towards these cross-national differences, discussed fully elsewhere, notably deep-rooted regional cultures and historical experiences, for example differentiating the cluster of Nordic societies from the position of post-communist nations in Central and Eastern Europe (Norris 2002).

[Figure 4 about here]

Moreover the United States has been at the forefront of the revolution in new information and communication technologies. Current estimates from surveys conducted by Neilson Net Ratings suggest that about 173 to 178 million Americans were online at home during March 2003, or about 59-61% [13]. This figure is similar to the rate of Internet penetration in many Scandinavian countries, and well above levels of access common in Western Europe, as well as most other countries worldwide (see Figure 5). Surveys estimate that by 2001 about 55.9 million, or 44% of the Japanese population was online, a figure estimated to rise to 87% by 2005[14]. Japan currently ranks around 16th in the world in the rate of Internet penetration, below countries such as Sweden, Iceland and Canada, but also well above many comparable affluent European postindustrial societies such as Italy, France and Germany (see Figure 6)[15].

[Figures 5 and 6 and Table 4 about here]

Yet despite these distinctive features of American society, there are also grounds to believe that the way that the Internet functions in the United States may, in fact, serve a similar function in many other postindustrial societies. If we compare the most common activities that people do when online, the core functions that emerge as the most popular in a series of independent surveys appear to be remarkably similar in the United States, the EU member states and Japan. Figure 7 shows the most common uses of the Internet evident in the European Union, where the function of email with friends, family and colleagues emerges as easily the most popular application, just as in Japan and the US. Below that, there are many sources of information that Europeans seek online, whether about education, leisure interests like travel and sports, or health and jobs. At the bottom of the rankings are various functions that may make slightly greater technical demands, as well as requiring greater computer resources such as memory and broadband connections, including holding videoconferences, watching TV or making a phone call via the Internet. The comparison with the most common uses of the Internet in

Japan, from the *Communications Usage Trend Survey,* show a roughly similar range of activities (see Figure 8), given the limitations of comparing different survey items. In Japan email is also clearly the 'killer ap', followed in popularity by getting information, online shopping, with only a minority engaging in internet telephoning, online banking or internet auctions. Therefore although the United States, Europe, and Japan differ in overall patterns of social capital, there are good reasons to believe that the social functions of the Internet, and therefore the capacity of the ICTs for promoting social capital, may find parallels in these comparable nations.

[Figures 7 and 8 about here]

Conclusions

Many believe that any erosion in the traditional face-to-face sociability and personal communications or *Gemeinschaft* in modern societies represents a threat to the quality of civic life, collaborative social exchanges, and the community spirit. Whether the Internet has the capacity to supplement, restore or even replace these social contacts remains to be seen. As an evolving medium that is still diffusing through the population it remains too early to predict the full consequences of this technology. Some theorists fear, and others hope, that ICTs can transform the community networks and social trust that bind us together. In particular it is hoped that online communities may have the potential to overcome traditional divisions among territorial communities, as exemplified by the ethno-religious enclaves in Belfast, the sharp divisions between the poorer inner cities and the affluent suburbs in Detroit, or racial divides in Johannesburg, as well as replacing some of the older ties of friends, family and neighbors if these have indeed eroded in modern societies. To consider these claims, we need suitable cross-national surveys as well as rich ethnographic case studies of the inner life of communities, including those functional and dysfunctional for society as a whole.

The Pew survey evidence among existing Internet users allows us to explore whether those Americans who are most active in online groups feel that it *widens* their experience of community (by helping them to connect to others with different beliefs or backgrounds), or whether it *deepens* their experience (by reinforcing and strengthening existing social networks). The analysis suggests that in general the Internet serves both functions, although the strength of this effect varies in important ways by the type of online group in America. If we can extrapolate more broadly from this study of the American internet population, the results suggests that the early theorists who hoped that online societies would eventually replace traditional communities may have exaggerated the transformational capability of this medium. Nevertheless this does not detract from the evidence that online participation does have the capacity to deepen linkages among those sharing similar beliefs, as well as serving as a virtual community that cuts across at least some traditional social divisions. While the Internet cannot hope to bridge the most fundamental conflicts evident in society, participation online may be able to reduce some of the traditional social barriers existing in plural societies.

Table 1. Factor analysis of the functions of the Internet, US

How much has the Internet helped you?	Bonding	Bridging
Become more involved with groups and organizations you already belong to?	.802	
Connect with groups and organizations that are based in your local community?	.754	
Find people or groups who share your interests?	.745	
Find people or groups who share your beliefs?	.655	
Connect with people from different racial or ethnic backgrounds?		.860
Connect with people from different economic backgrounds?		.806
Connect with people of different ages or generations?		.732
% Total variance explained	33.8	30.8

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Source: *Communities and the Internet* (January-February 2001) Pew Internet & American Life survey. http://www.pewinternet.org/

Table 2: The bridging and bonding function of different online groups, US

% Ever	% Most		Mean Bridging scale	Mean Bonding scale
50	24	A trade or professional association	46	53
50	21	A group for people who share a hobb y, interest or activity	51	56
31	7	A fan group for a particular TV show, entertainer or musical group	54	55
29	7	A support group for a particular sports team	49	54
29	3	A local community group	50	57
28	4	A group of people who share your personal beliefs	58	62
28	5	A support group e.g. for a medical condition	49	55
24	6	A group of people who share your lifestyle	56	63
22	3	A political group or organization	51	57
21	5	A religious group or organization	48	56
20	5	A sports team or league in which you participate	49	54
15	2	An ethnic or cultural group	59	61
6	1	A labor union	52	59

Type of group:

% Ever *"Have you ever used the Internet to be in contact with or get information from …"*

% Most *"Which of these groups are you in contact with most often through the Internet?"*

Bonding and bridging function 100-point scales: See Table 1. The scales were estimated for those who had 'ever' used the Internet to contact these groups. Bonding reinforces existing interests and social networks. Bridging expands the social diversity of contact networks.

The difference between the mean scores on the bridging and bonding scales for those who had ever used the Internet to contact these groups and those who had not were all significant at .01, as measured by ANOVA.

Source: *Communities and the Internet* (January-February 2001) Pew Internet & American Life survey. http://www.pewinternet.org/

Table 3: Regression model predicting bonding (i.e. how far Internet participation reinforces existing interests and social networks.)

	Unstandardized Coefficients		Standardized Coefficients	Sig.
	B	Std. Error	Beta	
(Constant)	124.11	3.66		.00
CONTROLS				
Age	.10	.02	.08	.00
Sex	1.39	.70	.03	.05
Education (last grade completed)	-.68	.23	-.05	.00
Income (household)	.28	.15	.03	.06
Race (white)	1.80	.89	.03	.04
TYPE OF ONLINE GROUP CONTACT				
Group sharing your personal beliefs	5.98	.58	.17	.00
Hobby, interest, or activity	4.61	.56	.14	.00
Local community group or association	3.82	.61	.10	.00
Political group or organization	5.30	.88	.10	.00
Entertainment fan club	4.08	.80	.09	.00
Share your lifestyle	2.58	.52	.08	.00
Support group	3.32	.75	.07	.00
Trade or professional association	2.66	.62	.07	.00
Religious group or organization	2.86	.83	.06	.00
Sports team	1.85	.86	.04	.03
Ethnic or cultural group	1.47	.72	.03	.04
Labor union	1.40	1.23	.02	.25
Sport supporter club	.95	.74	.02	.20
Adjusted R^2	.253			

Note: OLS regression models where the 'bonding' scale was the dependent variable.

Source: *Communities and the Internet* (January-February 2001) Pew Internet & American Life survey. http://www.pewinternet.org/

Table 3b: Regression model predicting bridging (i.e. how far the Internet participations expands the social diversity of contact networks.)

	Unstandardized Coefficients		Standardized Coefficients	Sig.
	B	Std. Error	Beta	
(Constant)	119.52	4.27		.00
CONTROLS				
Age	.14	.03	.10	.00
Sex	.32	.81	.01	.69
Education (last grade completed)	1.03	.27	.07	.00
Income (household)	.52	.18	.05	.00
Race (white)	4.28	1.04	.07	.00
TYPE OF ONLINE GROUP CONTACT				
Group sharing your personal beliefs	6.22	.67	.16	.00
Entertainment fan club	7.33	.93	.14	.00
Ethnic or cultural group	4.42	.84	.09	.00
Political group or organization	4.73	1.03	.08	.00
Share your lifestyle	2.49	.61	.07	.00
Personal support group	3.14	.87	.06	.00
Hobby, interest, or activity	2.26	.65	.06	.00
Local community group or association	2.08	.71	.05	.00
Sports team player	1.17	1.00	.02	.24
Trade or professional association	.75	.73	.02	.30
Labor union	-.20	1.43	-.00	.89
Sports support club	-.40	.86	-.01	.64
Religious group or organization	-.77	.97	-.01	.43
Adjusted R^2	.182			

OLS regression models where the 'bridging' scale was the dependent variable.

Source: *Communities and the Internet* (January-February 2001) Pew Internet & American Life survey. http://www.pewinternet.org/

Table 4: Growth of Internet Users, EU, Japan and U.S. 1996-2001

	Spring 1996	Spring 1997	Fall 1998	Spring 1999	Spring 2000	Spring 2001	Increase 1996-01
Sweden	12	26	43	61	61	63	+51
Denmark	10	17	26	44	53	62	+52
Netherlands	9	16	19	32	50	59	+50
U.S. (a)	***21***	***36***	***42***	***49***	***53***	***58***	***+37***
Finland	11	16	18	39	48	47	+35
Japan (b)		***9***	***13***	***21***	***37***	***44***	***+35***
Britain	9	10	11	22	40	40	+31
Luxembourg	5	13	16	22	33	35	+30
Austria	4	10	7	11	27	30	+26
EU15	***5***	***9***	***12***	***20***	***26***	***30***	***+25***
Italy	3	5	7	14	22	29	+26
Ireland	4	5	9	14	25	28	+24
Belgium	3	6	8	11	23	26	+23
Germany West	5	8	8	8	20	26	+21
France	2	4	4	9	20	23	+21
Spain	2	2	5	8	16	22	+20
Germany East	2	4	5	8	20	20	+18
Greece	1	3	3	7	11	16	+15
Portugal	2	2	3	5	12	15	+13

Note: The Eurobarometer question asks, **"***Do you have access to, or do you use, the Internet or World Wide Web.*"[16] The Pew survey asks, "*Do you ever go online to access the Internet or World Wise Web or to send and receive email?*" Note that differences in fieldwork, sampling practices and item wording may limit strict comparability across surveys although the analysis of trends within each country is more reliable.

Sources

EU-15: Eurobarometers 44.2 Spring 1996; 47.0 Spring 1997; 50.1 Fall 1998; 51.0 Spring 1999, 53.0 Spring 2000; 55.0 spring 2001.

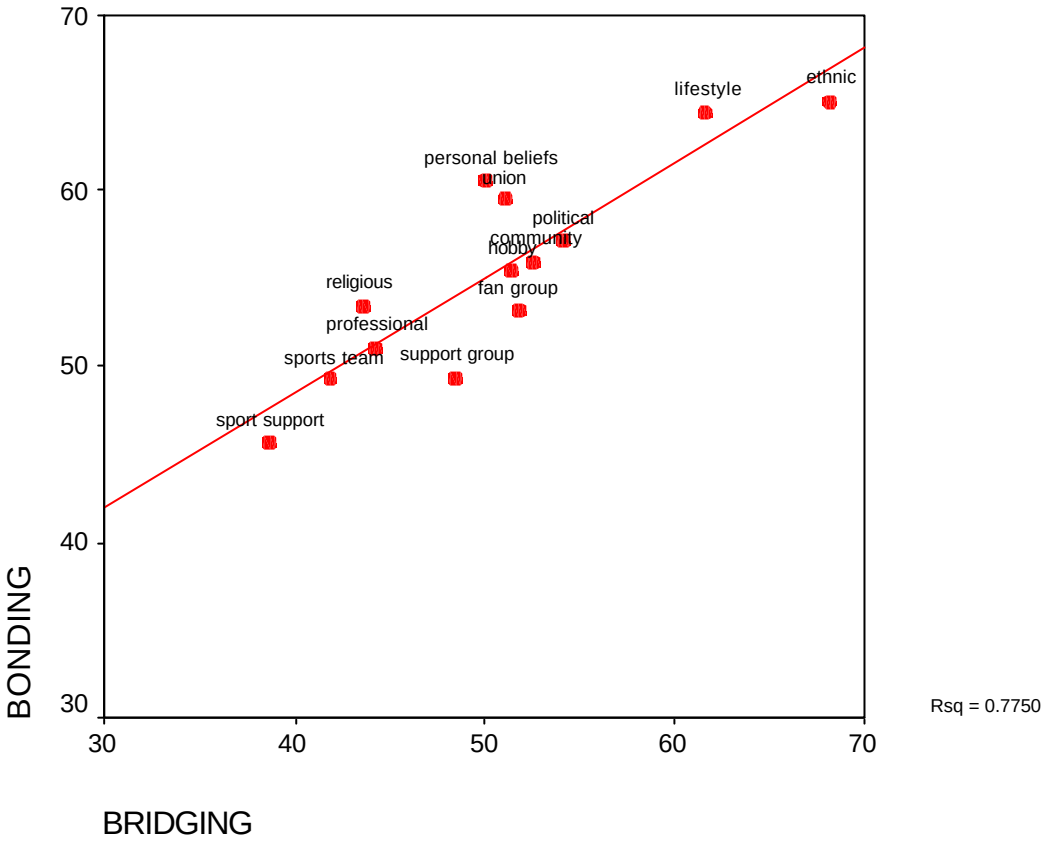
(a) US: successive surveys by *The Pew Research Center for the People and the Press*. See http://www.pewinternet.org/

(b) Japan: Information and Communication Policy Bureau. MPHPT. Communication Usage Trend Survey 12. *IT Indicators in Japan 2002*. Statistics Bureau. www.stat.go.jp/english/data

Figure 1: Typology of Groups

	Social Homogeneity	Social Heterogeneity
Ideological homogeneity	**Bonding** Reinforces and strengthens existing social and ideological networks	**Mixed** Brings contact with socially diverse but ideological similar groups
Ideological Heterogeneity	**Mixed** Brings contact with socially similar but ideologically diverse groups	**Bridging** Expands the race, class and age diversity of social and ideological networks

Figure 2: The bridging and bonding function of different online groups, US



Notes:

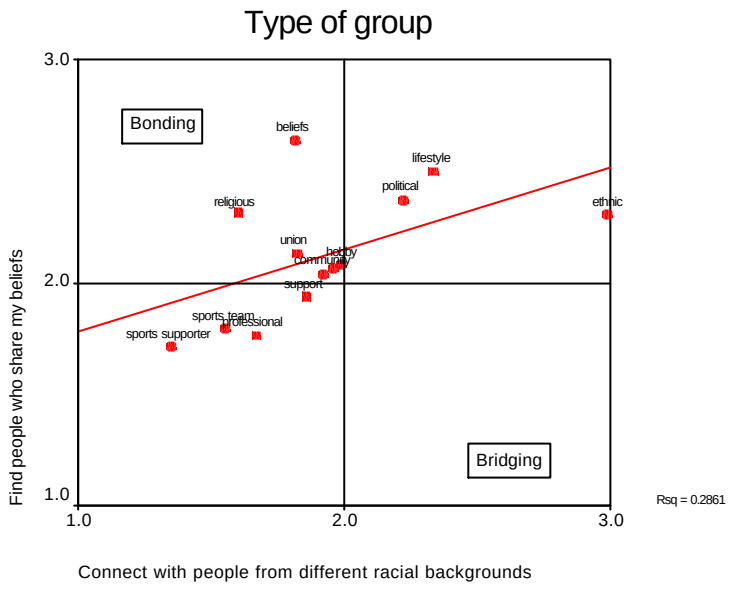
Type of group: *"Which of these groups are you in contact with most often through the Internet?"*

Bonding and bridging function 100-point scales: See Table 1.

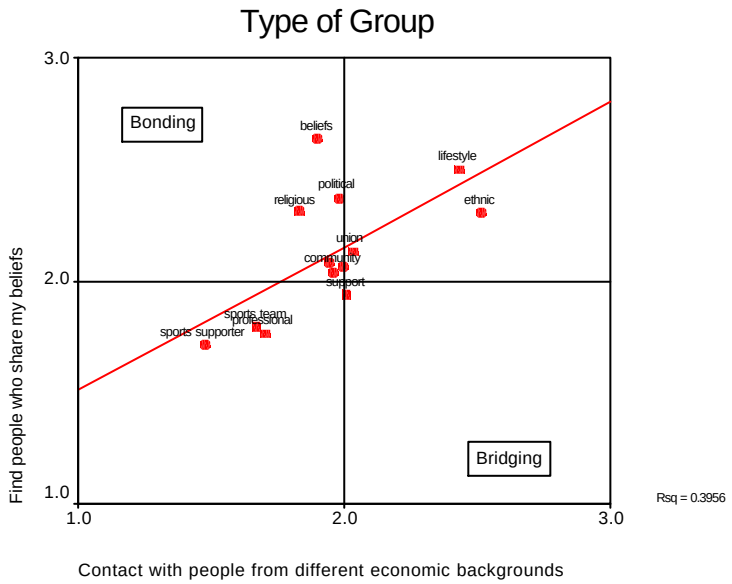
Source: *Communities and the Internet* (January-February 2001) Pew Internet & American Life survey. http://www.pewinternet.org/

Figure 3: Types of group by race, class and generational bridging, US

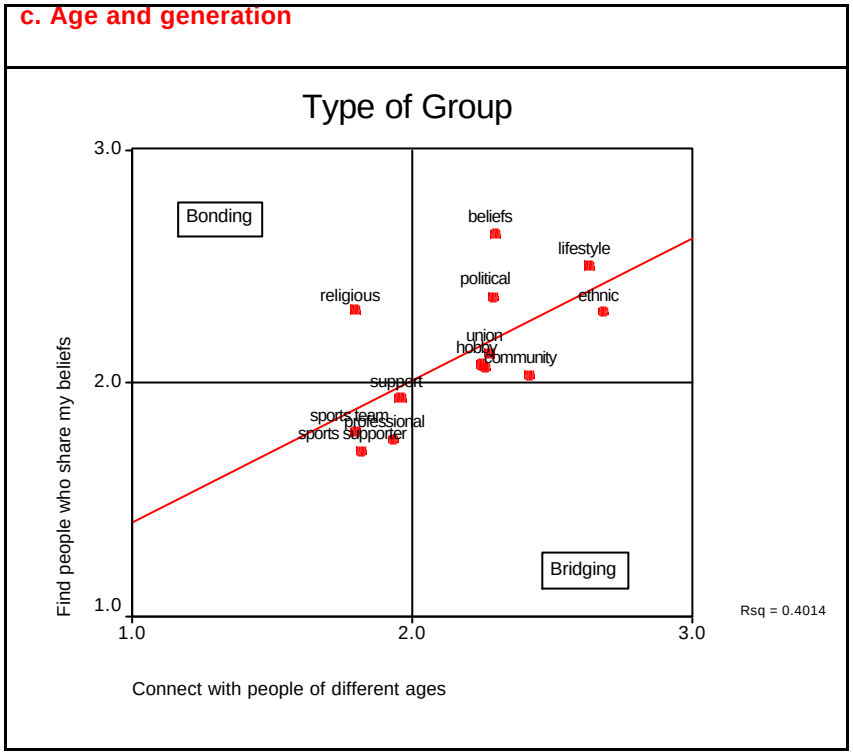
a. Race and ethnicity



b. Class

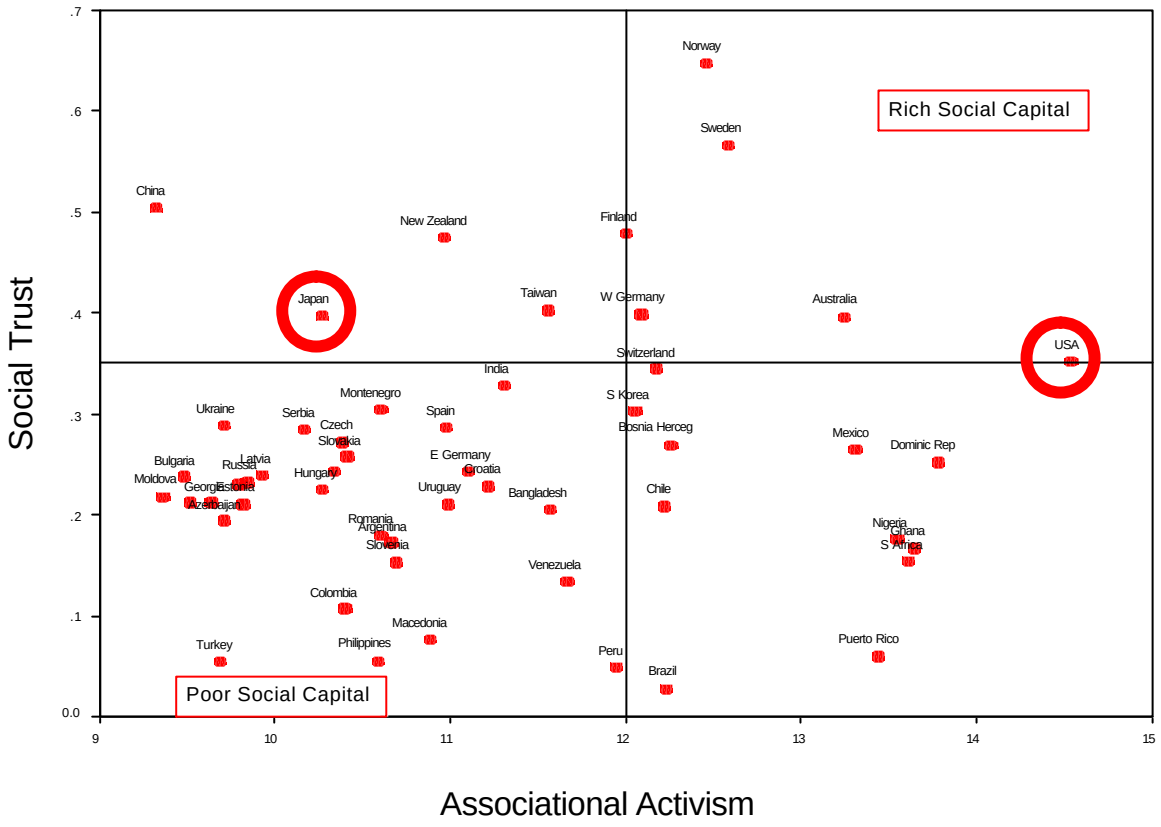


c. Age and generation



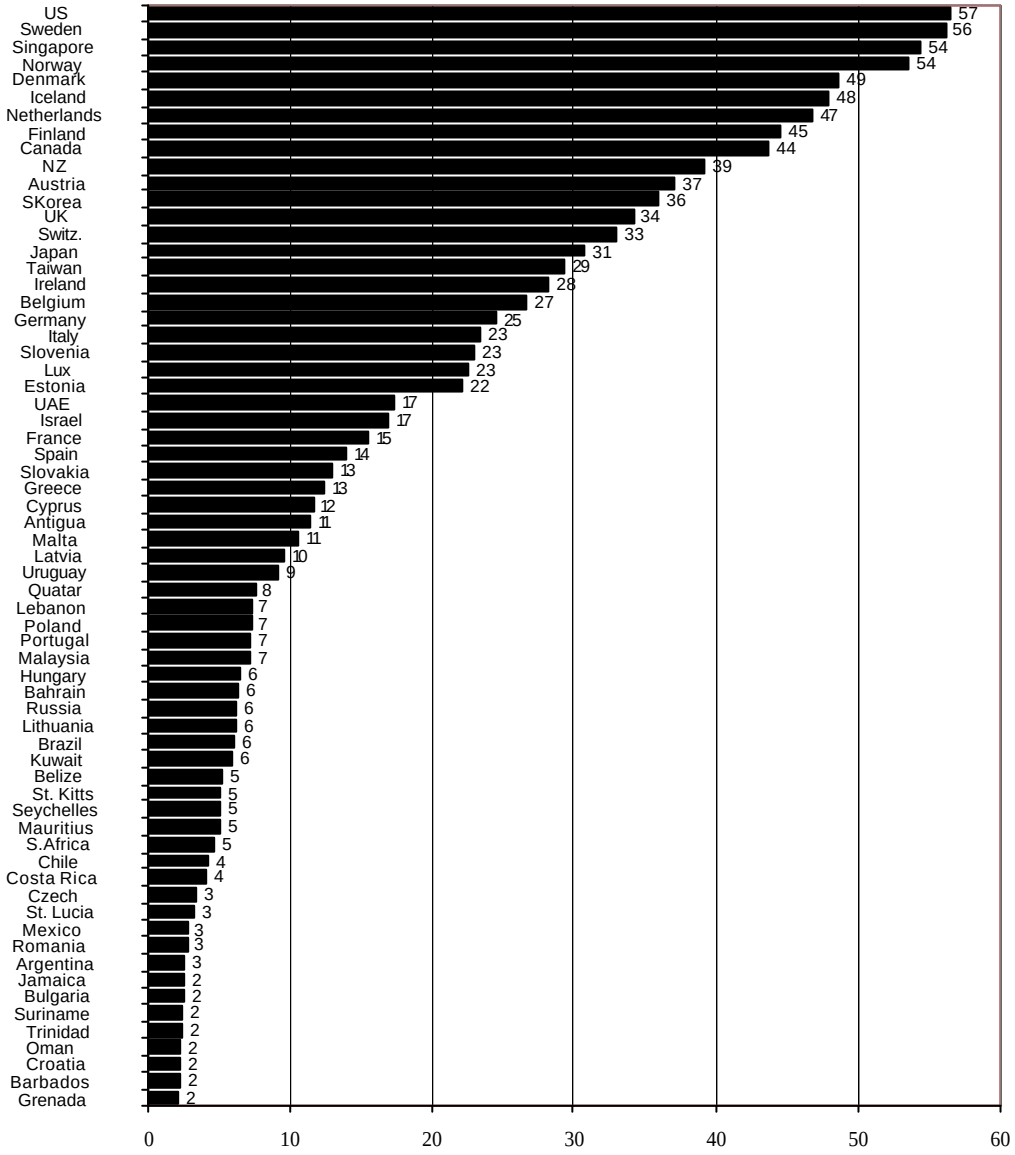
Source: *Communities and the Internet* (January-February 2001) Pew Internet & American Life survey. http://www.pewinternet.org/

Figure 4: The map of social capital, mid-1990s



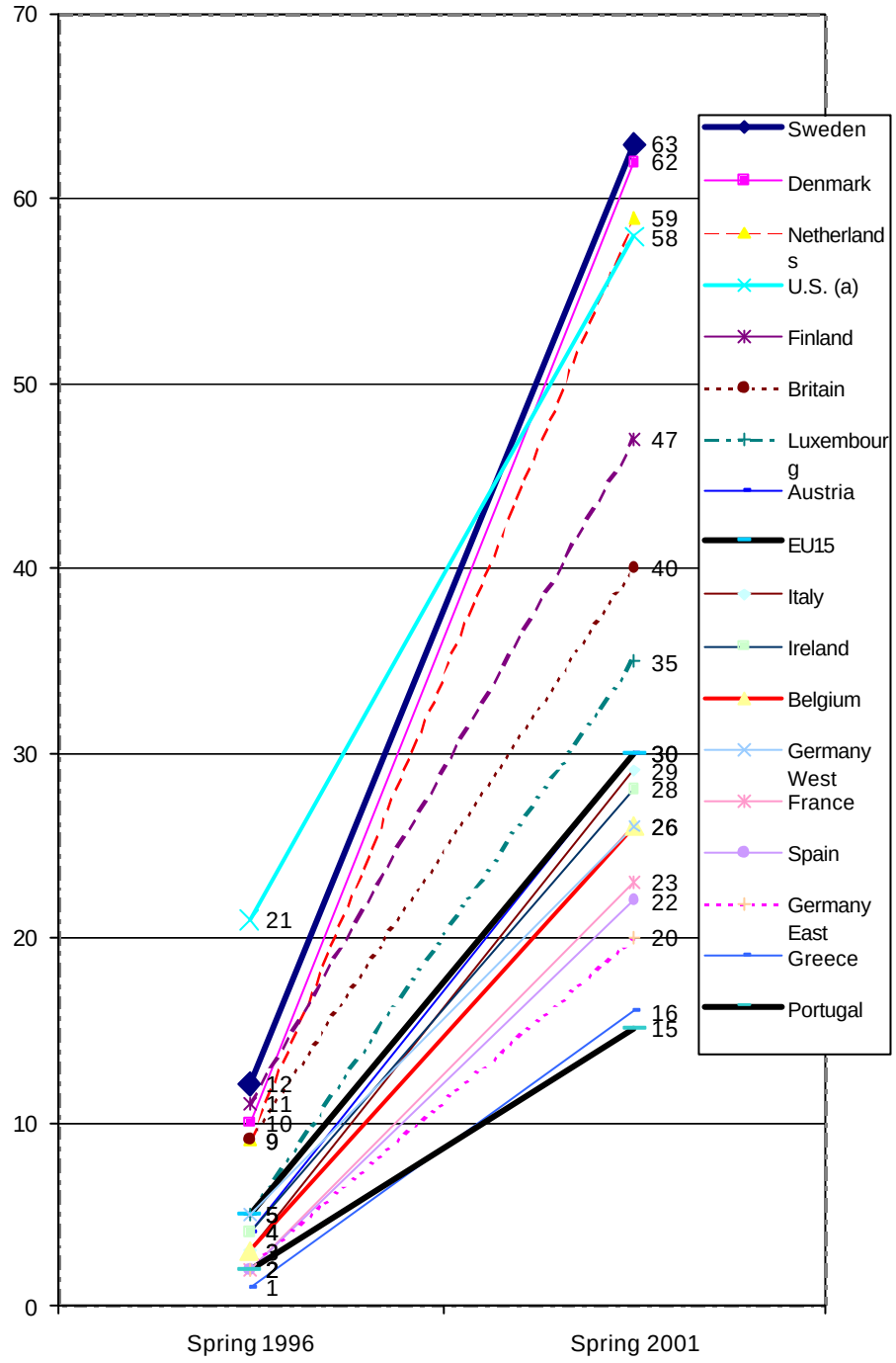
Note: (i) Social trust: *"Generally speaking, would you say that most people can be trusted (1) or that you can't be too careful in dealing with people? (0)"* The proportion responding 'can be trusted' in each society. (ii) Associational activism: "*Now I am going to read off a list of voluntary organizations; for each one, could you tell me whether you are an active member, an inactive member, or not a member of that type of organization?"* The organizational scale adding together whether people were active members, passive members, or not members of any of the nine categories of voluntary organizations eg sports clubs, parties, unions, environmental groups, professional associations. Source: World Values Study, mid-1990s. Norris (2002)

Figure 5: The Percentage of the Population online by nation, Spring 2001



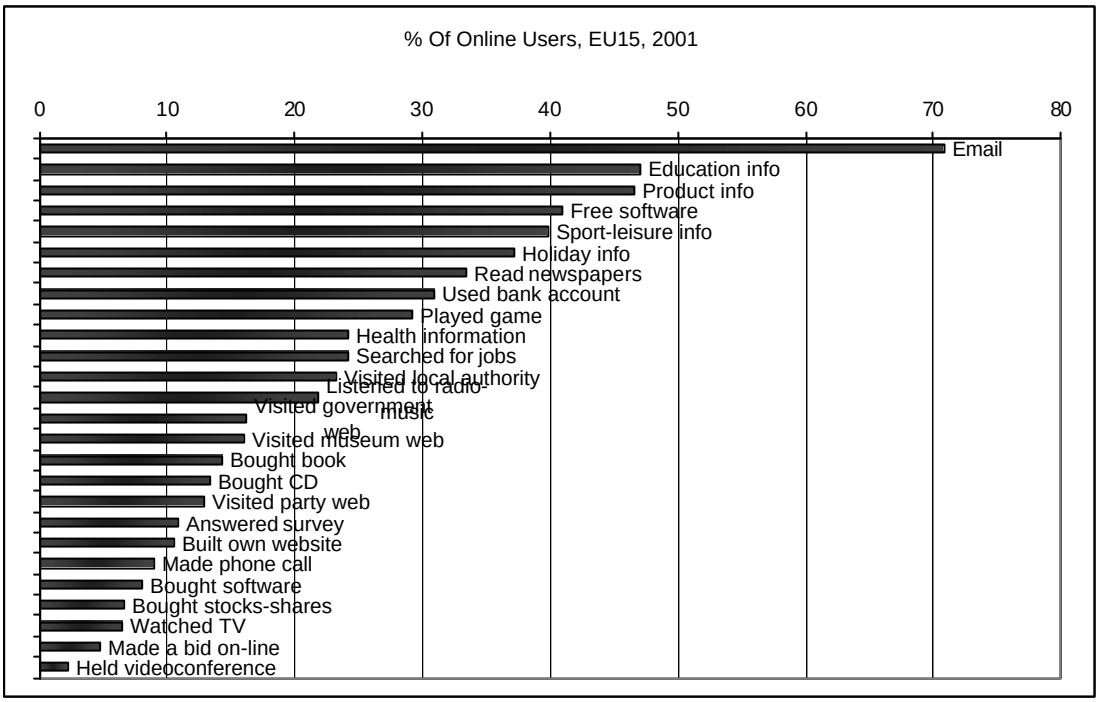
Source: All countries worldwide with 2 percent or more of the population online. Calculated from 'How many online?' Spring 2001. www.NUA.com

Figure 6: Growth in Internet Access, EU15 1996-2001



Source: Eurobarometer surveys. http://europa.eu.int/comm/public_opinion/

Figure 7: The most popular Internet functions in European Union-15, 2000

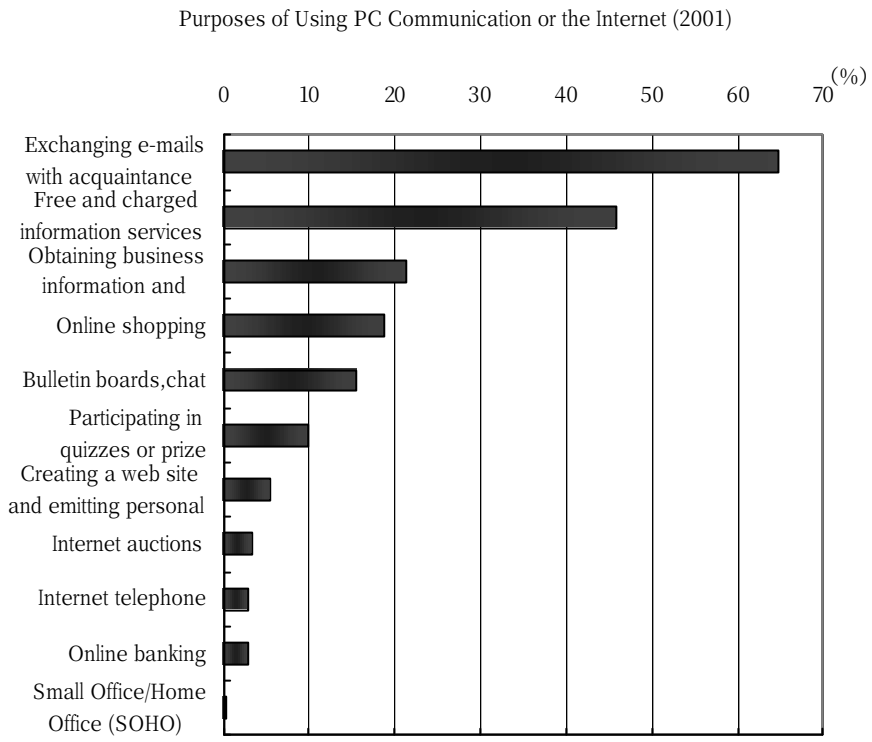


Note: The percentage of the online population in the 15 European Union member states.

Q: *"Which of the following, if any, have you done online in the last three month?"*

Source: Eurobarometer 53.0 Spring 2000. http://europa.eu.int/comm/public_opinion/

Figure 8: The most popular Internet functions in Japan, 2001



Note: Percentage of the head of households aged 20 or over who use the Internet.

*Source: Information and Communications Policy Bureau, MPHPT, '*Communications Usage Trend Survey' *[12]. IT Indicators in Japan, 2002 Statistics Bureau and Statistics Center*

http://www.stat.go.jp/english/data/it/index.htm

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Endnotes:

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[1] Pippa Norris. 2001. *Digital Divide: Civic Engagement, Information Poverty and the Internet Worldwide*. New York: Cambridge University Press.

[4] Robert D. Putnam. 2000. *Bowling Alone: The Collapse and Revival of American Community*. NY: Simon and Schuster. P.19. Putnam also offers a related definition: "By 'social capital' I mean features of social life - networks, norms and trust – that enable participants to act together more effectively to pursue shared objectives." Robert D. Putnam. 1996. 'Who Killed Civic Life.' *The American Prospect. P.56.*

[5] The seminal works are Robert D. Putnam. 1993. *Making Democracy Work: Civic Traditions in Modern Italy* Princeton, NJ: Princeton University Press; Robert D. Putnam. 1996. 'The Strange Disappearance of Civic America.' *The American Prospect,* 24; Robert D. Putnam. 2000. *Bowling Alone: The Collapse and Revival of American Community*. NY: Simon and Schuster. More recent comparative research is presented in Susan Pharr and Robert Putnam. Eds. 2000. *Disaffected Democracies: What's Troubling the Trilateral Countries?* Princeton, NJ: Princeton University Press; Robert D. Putnam. Ed. 200X. *The Dynamics of Social Capital*. Oxford: Oxford University Press.

[6] See Kenneth J. Arrow. 2000. 'Observations on social capital.' In *Social Capital: A Multifaceted Perspective*. Eds. Partha Dasgupta and Ismail Serageldin. The World Bank: Washington DC.

[7] Robert Putnam. 1993. *Making Democracy Work: Civic Traditions in Modern Italy* Princeton, NJ: Princeton University Press. P.89-90.

[8] Susan Pharr and Robert Putnam. Eds. 2000. *Disaffected Democracies: What's Troubling the Trilateral Countries?* Princeton, NJ: Princeton University Press.

[9] Robert D. Putnam. 1993. *Making Democracy Work: Civic Traditions in Modern Italy* Princeton, NJ: Princeton University Press.

[10] For a discussion see Kenneth Newton and Pippa Norris. 2000. 'Confidence in Public Institutions: Faith, Culture or Performance?' In *Disaffected Democracies: What's Troubling the Trilateral Countries?* Eds. Susan Pharr and Robert Putnam. Princeton, NJ: Princeton University Press; Kenneth Newton. 2001. 'Trust, Social Capital, Civic Society, and Democracy.' *International Political Science Review* 22(2): 201-214.

[11] Robert Putnam. 2000. Op Cit. p.246. Also Robert Putnam. 1995. 'Tuning In, Tuning Out: The Strange Disappearance of Social Capital in America.' *P.S: Political Science and Politics* XXVIII (4): 664-83; Pippa Norris. 1996 'Did Television Erode Social Capital? A Reply to Putnam' *PS: Political Science and Politics*. XXIX (3) September: 474-480.

[12] Princeton Survey Research contacted a sample of 3002 respondents using a random-digit sample of telephone numbers designed to be representative of the American adult population, and then identified a sub-sample of Internet users (N. 1697). The sample data are weighted in the analysis to be representative of the population.

[13] The Nielsen//NetRatings universe for the At Home Internet audience measurement is all individuals aged 2+ living in homes that have access to the Internet via a PC owned or leased by a household member and using a Windows operating system. See http://www.nielsen-netratings.com/pr/pr_020912.pdf

[14] Ministry of Public Management, Home Affairs, Posts and Telecommunications, Japan. 2002. White Paper. '*Information and Communications in Japan*.'

[15] www.NUA.com

[16] There is some ambiguity in these items whether they refer to use at home or work or both. It should be noted that Eurobarometer 50.1 did differentiate by asking users whether they had access at home or at work to different types of technology, like a computer. The comparison of

the results in 50.1 with other surveys suggest that in these other surveys respondents may have based their answers on their home use. If so, this measure may considerably underestimate the total proportion of computer users and online users in Western Europe.