Movement in the Making?
International Institutions, Transnational Civil Society and Communication-Information Policy

Social Network Analysis of the WSIS Civil Society

Introduction

This part of the report includes information and social network analysis of the WSIS civil society actors' dataset. It includes a brief discussion of our data collection method, and initial description and analysis of the interpersonal and affiliation networks observed.

Data collection

Our population of interest was the network of civil society advocates (i.e., non-governmental) involved in communications and information policy issues. From this unbounded population, we targeted individual advocates engaged in global institutional processes discussing CIP issues, including the WSIS, ICANN, World Social Forum and WIPO related meetings, held from 2003 to 2005. Each one of these venues has been the subject of numerous individual case studies on political activity surrounding CIP issues (e.g., Patomaki and Teivainen, 2004; Raboy, 2004; Klein, 2004; Mueller, 2002), and seemed like appropriate places to find and interview advocates.

In many respects, our data collection strategy mimicked that of Davis, Gardner and Gardner's (1941) benchmark study, using interviews, subject's personal records, archived participant lists, and organizational websites to identify appropriate subjects. Our strategy could be described as a modified snowball sampling, using some previously generated information to inform us of potential new subjects. The problem of developing valid samples in social networks for statistical inference is well known (Rothenberg, 1995; Breiger, R., K. Carley, et al. 2003). While traditional inferential statistics relies upon the logic of a sample mirroring a population with a known underlying distribution, the population which constitutes the social network of civil society advocates is difficult, if not impossible to specifically characterize and quantify. Given this, we have not undertaken efforts to generalize our findings beyond the CIP advocacy community observed. Nonetheless, we feel our selection of institutions broadly represented the global CIP discussion among advocates. Subsequent monitoring of institutions and issue areas (e.g., additional events, online discussion lists about an issue, etc.) confirmed that the subjects interviewed were indeed engaged in CIP advocacy. And, with regard to interpersonal networks, we eventually observed saturation in subject responses, with many individual names cited repeatedly and relatively few new names occurring.

Once a subject was identified and agreed to participate in the study, data was collected using a free recall survey (attached as Appendix 1) in conjunction with semi-structured interview focused on CIP advocacy, the individual's related background and organizational affiliations. Given the evolving nature of advocacy networks, this

approach seemed far more appropriate and realistic than relying upon fixed lists (e.g., using participant rosters) or communication artifacts (e.g., list serve archives) to determine interpersonal and other relationships (Dorien and Woodard, 1992). As noted by Breiger, et al. (2003) we felt it important to gain as much insight as possible into the attributes of each node (e.g., advocate's issue orientation, physical location, group and organizational affiliations). Given these considerations, the time to complete the survey averaged more than one hour, with some respondents requiring additional time beyond the interview. In this event, follow-up was done via email.

While engaged in discussion, subjects were encouraged to write down names of people, organizations, events and information sources that came to mind. Early on, the difficult nature of the free recall exercise became apparent. Subjects tended to introduce situational bias, frequently noting individuals associated with, or events similar to, the one at which the survey was administered while forgetting to note other events that they had attended or individuals they knew. Often, however, this pattern could be broken by prompting the subject to utilize an objective artifact (e.g., their computer-based PIM, with contacts and calendar) as a reference for identifying information. In all cases, interviewers encouraged subject's to err on the side of inclusiveness rather than attempt to discriminate between advocacy and non-advocacy related responses.

In total, we approached about one-hundred advocates, securing mapping surveys from fifty-three individuals with only four individuals flatly refusing to complete the survey. Once the data was collected, it was reviewed immediately afterward for clarity and any discrepancies were resolved via communication with the subject. Actors, organizations and events listed were then assigned identifiers. To boost our confidence in the organizational and event data collected, we often referred back to event websites and rosters of attendees to confirm data accuracy. Fortunately, only in rare circumstances did we identify a subject's attendance at an event that was already in our dataset which they failed to list. In these few instances, we added the subject's attendance to the dataset. We intentionally did not include an actor's own organizational affiliation in the dataset, rather asking individuals to list organizations with which their own organization worked with most frequently.

The network dataset was analyzed using UCINET (Borgatti, S.P., Everett, M.G. and Freeman, L.C. 2002); it included 428 individual nodes, linked by 617 interpersonal relationships. More than 260 organizations were identified by advocates, ranging from loosely affiliated or time limited working groups and caucuses to formally structured domestic or international NGOs and intergovernmental institutions. In addition, advocates listed 387 separate events occurring on almost every continent, involving a wide array of governmental, private sector, and civil society actors.

Interpersonal network

In the interpersonal advocacy network, nodes represent individual advocates and links represent directional relationships between a subject and another individual. The data produce a structure of 428 unique individuals linked by 617 relationships, where the network density (matrix average) equaled 0.0034 (SD = 0.0581), revealing a network that does not appear particularly dense. The network exhibits some characteristics observed in other social networks. Figure 1 (below) indicates a power law distribution of in-degree links, with relatively few actors being cited numerous times and the majority of actors only connected by a single link. If one looks at out-degree, however, links are more normally distributed ranging from 4 to 19 links (median = 12, standard deviation = 4.076).[1]

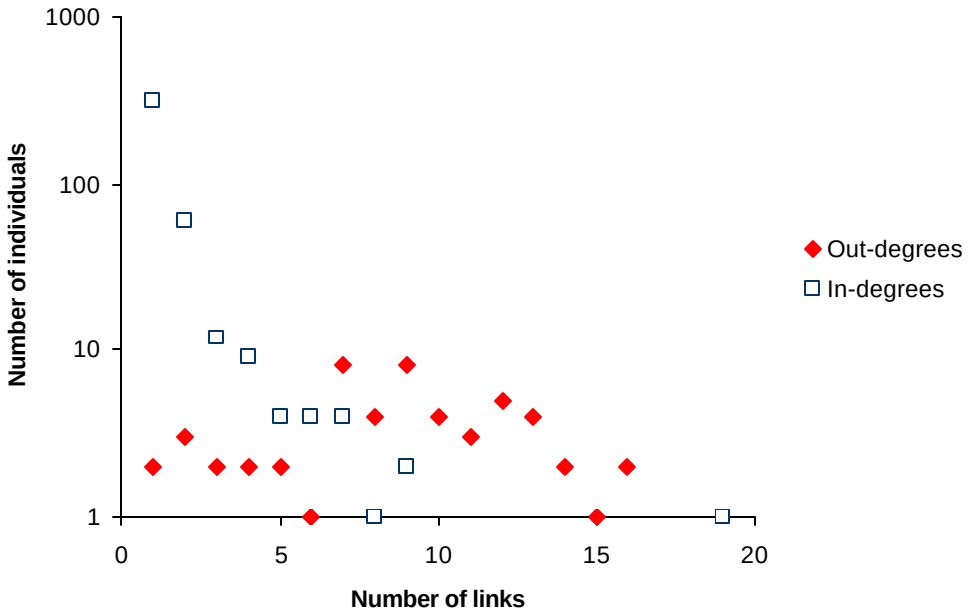

Figure 1: Interpersonal network links (log normal scale)

In addition to in-degree links being concentrated among relatively few actors, the average path distance is 3.875 between reachable node pairs, with a maximum of 10 links between nodes. This relatively short average path distance is somewhat surprising given the arguably vast array of issues, organizations and advocates engaged in CIP.

Clustering measurements indicate that sub-structures of individuals (or "neighborhoods") do indeed exist within the interpersonal network.[2] The overall clustering coefficient is .0231, and the weighted coefficient is 0.053[3], both are substantially higher than the entire

[1] Actors with out-degree of zero (i.e., those not interviewed) were not included in this calculation.
[2] Clustering measurements use indicators of transitivity to indicate the amount of sub-structures in a network. (Newman, Strogatz and Watts, 2001) In a network where A has a relation with B, and B with C, the network is said exhibit transitive properties (and therefore greater clustering) if C has a relation to A.
[3] This measure gives weight to the neighborhood densities proportional to their size.

network's density. This suggests that there are numerous sub-structures within the network.

This paradox, between isolated clusters and relatively short average path distances between any two nodes, is known as the "small world" effect (Watts and Strogatz, 1998). It is often seen in social networks, and is attributable to the fact that, despite the tendency to organize in to relatively isolated groups, a small amount of random connections between groups through key individuals can result in network that requires few links to reach any other node.

While the network (Figure 2 below) shows a broad range of CIP issue networks connecting, there appears to be a lingering significance of geography and still some

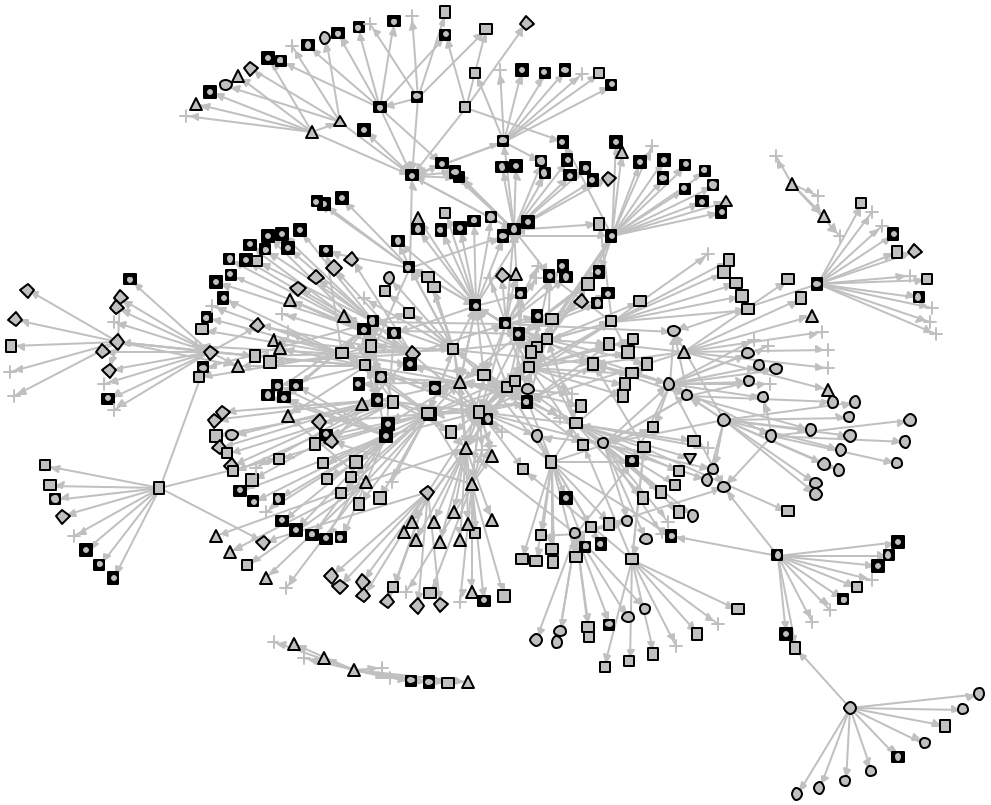

Figure 2: Transnational CIP interpersonal network

barriers to integration of different regions and issue areas. North Americans (circle-in-box) are distributed throughout the network; Europeans (squares) tend to be distributed around the center, Latin Americans (diamonds) cluster around 6:00-9:00, and Africans (circles) tend to be found between 3:00-6:00. Although there are more North Americans, the Europeans are less regionally clustered and interspersed throughout the network. North Americans and Europeans combined account for almost 60% of the identifiable actors.

Table 1: Distribution of interpersonal network nodes by region

Region	Symbol	Frequency	Percent	Cumulative Percent
AF	Circle	50	11.71%	11.71%
AP	Up Triangle	42	9.84%	21.55%
EU	Square	111	26.00%	47.54%
LA	Diamond	36	8.43%	55.97%
NA	Circle-in-Square	128	29.98%	85.95%
Unknown	Plus	60	14.05%	100.00%
Total		428	100.00%	

Despite being geographically diverse, the interpersonal network is Euro-centered. If one uses eigenvector centrality (see Table 2 below) to rank individuals, six of the top ten most central actors are based in Europe. A striking feature of the diagram is the minimal involvement of Asians (triangles) in the global civil society network. Less than 10 percent of the identified actors are from Asia. There are only two Asians with significant centrality, and both are in Japan. India and China are notable by their relative absence.

Table 2: Centrality measures of interpersonal network by eigenvector score[4]

Node	Region	Issue	Degree	Closeness	Betweenness	Eigenvector
A.4	EU	Development; Gender; Priv & Sec; IntGov	7.561	36.412	33.727	55.172
A.120	EU	IntGov	3.902	32.800	6.333	37.953
A.117	EU	Priv & Sec; F/OSS	4.390	31.538	5.018	34.982
A.119	AP	IntGov	3.902	31.442	5.328	32.916
A.116	NA	Priv & Sec; IntGov	4.146	33.497	14.421	31.979
A.124	NA	UNProcess; Priv & Sec	5.122	33.634	16.370	31.717
A.218	EU	Human Rights	3.415	31.014	5.695	30.451
A.47	EU	IntGov; UNProcess	4.390	30.990	7.718	30.139
A.17	EU	UNProcess	4.634	30.574	8.463	27.754
A.132	AP	IntGov	4.634	30.689	9.626	26.367

Table 2 reveals a concentration of centrality on individual A.4, Karen Banks, who coordinates Networking and Advocacy in the Communications and Information Policy Programme for the Association for Progressive Communications (APC).[5] By any centrality measure (degree, closeness, and betweenness) she is the hub of the interpersonal network. APC is involved in a variety of CIP issues, from gender to ICT development to Internet. Following Banks in rank are individuals who focus on Internet governance, privacy, free and open source software, human rights, and civil society participation in UN processes[6]. Among other things, this data shows the degree to which the growing prominence of internet governance has brought into the center of the CIP advocacy network individuals who are strongly associated with that issue and active in the civil society institutions of ICANN (e.g., A.120, A.119, A.116, A.47, A.132)[7].

[4] Analysis was done on complete network, two disconnected nodes were removed.

[5] See APC's 2003 Annual Report at http://www.apc.org/books/apc_ar2003_EN.pdf. Subjects were assured confidentiality and anonymity in the interview protocol, and only upon their granting permission would identity be revealed in research write-ups.

[6] As an issue area, this could be generalized to cover civil society participation in (traditionally intergovernmental) institutional processes.

[7] It is important to note that while A.4, A.124 and A.17 also are denoted as focused on internet governance, their involvement in the issue began with the WSIS. The other actors mentioned had all previously been involved in the ICANN.

While the above centrality measures give a quick indication of the overall importance of an individual to the network, it is helpful to discriminate the directional relationship data which generate the degree centrality score. Figure 2 (below) plots individuals, with normalized in-degree (i.e., number of times an individual was cited by subjects) along the x-axis and out-degree (i.e., number of individuals a subject cited) along the y-axis. Nodes are shaped according to region[8], sized by total degree centrality and shaded darker for higher betweenness scores. Betweenness measures the degree to which one needs to "go through" a given individual to become connected to other people; more technically, it is the total number of geodesic shortest paths between other nodes that pass through a given node (Freeman, 1977). Nodes with high levels of betweenness can act as gatekeepers of information flow, or as liaisons between different parts of the network, which is particularly important activity in the nascent stages of a social movement (citation).

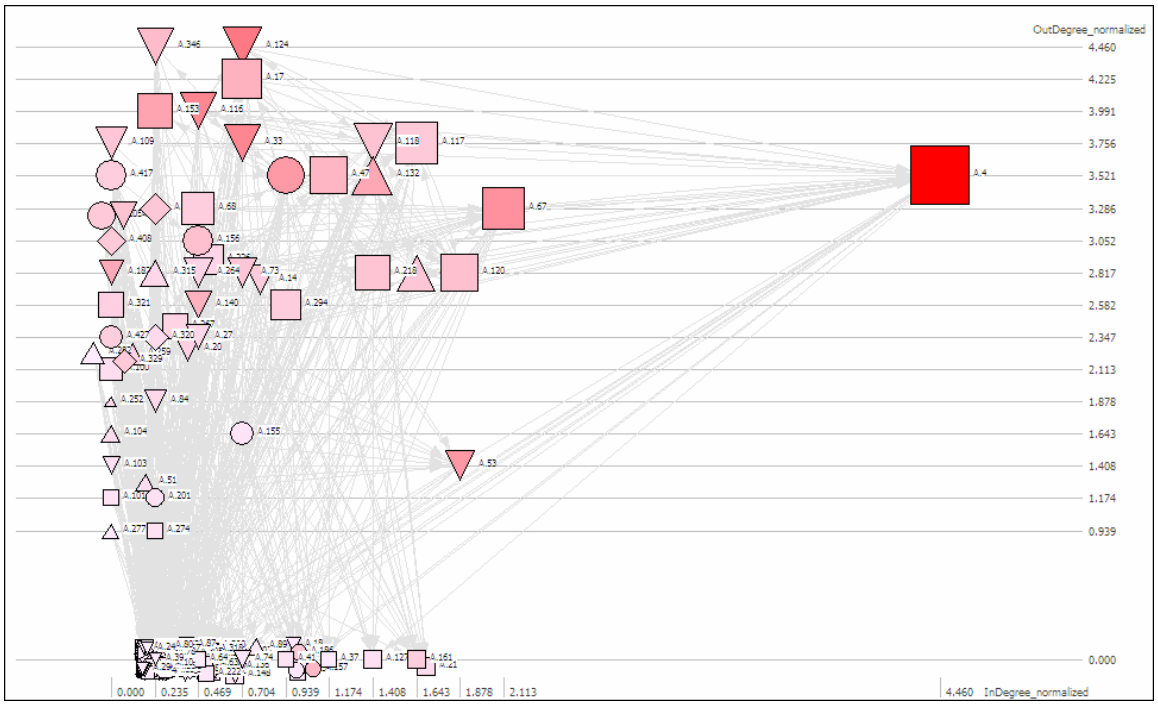

Figure 3: Scatterplot of individuals by degree measurements

The cluster of nodes along the x-axis near the bottom represents individuals not interviewed, including some (e.g., A.37, A.127, A161, A.21) who were mentioned frequently by subjects.[9]

Figure 2 illustrates that the most central advocates in the interpersonal network maintain a mix of inward and outward relationships. Aside from Karen Banks (A.4), there is a

[8] Africa (circles), Asia (up triangles), Europe (squares), Latin America (diamonds), North America (down triangles), Unknown (sideways triangles).
[9] Nodes are offset from the x-axis and y-axis to allow for clarity.

central cluster of European and Asian based advocates (i.e., A.67, A.120, A.218, A.117, A.119, A.132), along with a single African based advocate (A.126) with high combined degree centrality. As shown earlier in Table 2, most of these actors are active in internet governance and are engaged in other issue areas as well. The exceptions, A.67 and A.218, are long time advocates active in the CRIS campaign and human rights, respectively.

The upper left corner represents advocates (e.g., A.124, A.17, A.33, A.116, A.153, and A.346) who specified the greatest number of individuals in their network, but were not cited themselves by other advocates. Given their low in-degree scores, these mainly North American based advocates could be perceived as non-influential. However, as shown in Figure 2 and Table 3 (below), it is important to consider their high betweenness scores, connecting more specific advocacy issues like privacy, intellectual property, civil society within the UN process, and groups like the ISOC technical community to the broader CIP movement. In general, North American activists participating in the WSIS tend to have higher scores because of the lower degree to which North American civil society advocacy groups are integrated with the WSIS process (relative to other regions, e.g. Europe).

Table 3: Top 10 individual betweenness scores in interpersonal network

Node	Region	Issue	Betweenness
A.4	EU	Development; Gender; Priv & Sec; IntGov	33.727
A.124	NA	UNProcess; Priv & Sec	16.370
A.33	NA	IPR; IntGov	14.600
A.116	NA	Priv & Sec; IntGov	14.421
A.67	EU	CommRights	12.907
A.53	NA	IPR	11.977
A.126	AF	Development; IntGov	11.777
A.153	EU	IntGov	10.491
A.132	AP	IntGov	9.626
A.182	NA	IntGov	9.488

A third cluster of individuals displays mid-level out-degree scores and low in-degree scores. This group varies in betweenness scores and more importantly in geographic diversity. Along with two outliers (A.53 and A.155), these nodes potentially represent additional opportunities for advocacy development by either increasing individual or regional capacity to address CIP issues or to bridge the CIP movement to additional issue areas.

Affiliation networks

In order to understand the impact of the WSIS, other CIP related events, and advocacy organizations on integrating a broader CIP movement, we undertook simultaneous analyses of individuals and attendance at international meetings from 2002 to 2005, and of individuals and the organizations which they listed as important to their work. These two-mode, or affiliation networks, differ from one-mode networks in that rather than consisting of a single set of actors, they consist of two sets of entities (e.g., individuals and events) (Faust 1997; Wasserman and Faust 1994). Affiliation networks are "non-dyadic because the affiliation relation relates each actor to a subset of events [or organizations], and relates each event [or organization] to a subset of actors" (Faust 1997:158)." By converting 2-mode data into a single mode network and running standard SNA analysis[10], the affiliation networks allow us to see, 1) the relative importance of different CIP events organizations, and 2) how, in turn, those factors affect the structure of the broader CIP advocate network (Borgatti and Everett, 1997).

WSIS as a mobilizing event

In Figure 4 (below), nodes represent international meetings and links represent individuals. This network highlights the extent to which any specific CIP related event(s) served as a catalyst for individual interaction, potentially facilitating the development of common ideas across issue areas. (Everett and Borgatti, 2005) Links are weighted and colored to indicate that 5 or more individuals attended an event pair. Event nodes are colored to signify different types of events[11] and sized according to their betweenness score, which represents the extent to which an event, by virtue of the attendance it had, linked other events in the overall network.

Figure 4 clearly shows the importance of the WSIS in bringing numerous individuals together repeatedly over a sustained period. In addition to sheer quantity of individual affiliations between WSIS events, the process served as a broker of information, as indicated by the high betweenness scores of the WSIS Phase 1 Summit (E.77), Prepcoms (E.80, E.81, E.82, E.203) and Intersessional (E.79). Undoubtedly, it brought together individuals with diverse advocacy experiences, providing a "structure for discourse" on CIP related issues (Hintz, 2005).

[10] As pointed out in Everett and Borgatti (2005), analysis conducted by converting two-mode data to standard network data (i.e., one-mode) can result in considerable loss of information, and they propose an alternative means for deducing centrality measures of 2-mode networks. The ramifications of this data loss will need to be explored further prior to any subsequent analysis.

[11] Black nodes are WSIS related events; white nodes are ICANN related events.

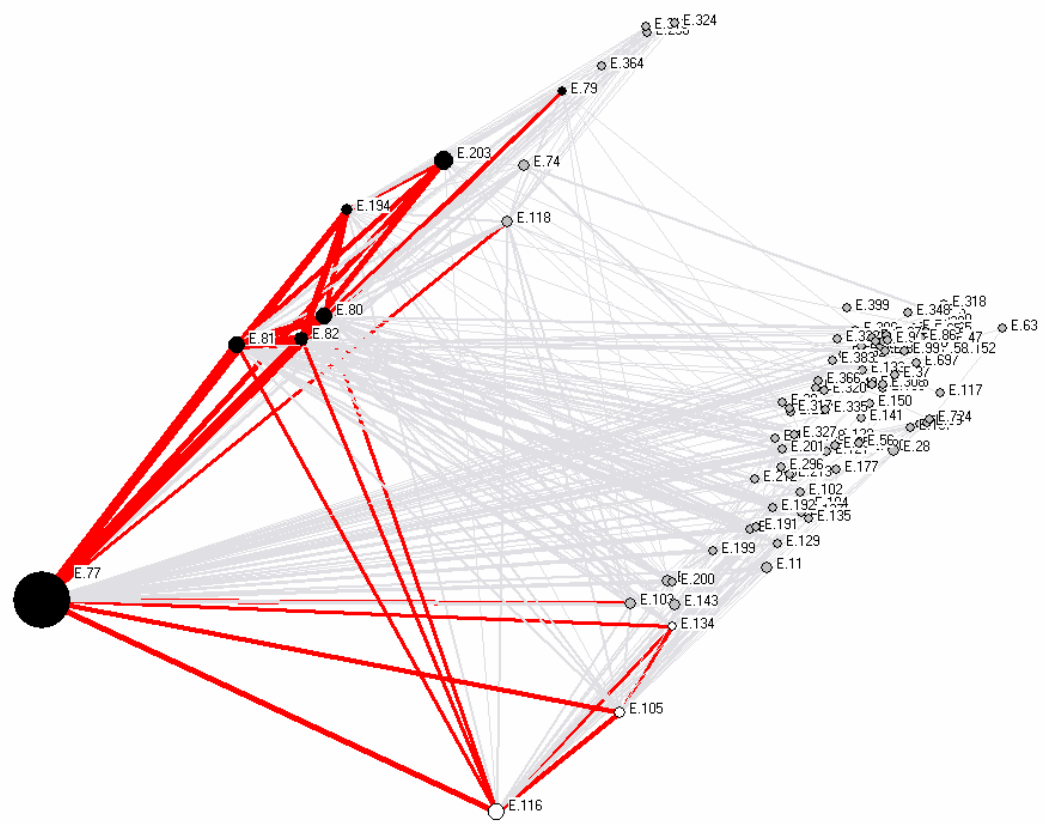

Figure 4: Event's individual affiliation network

While the value of the WSIS in accomplishing this goal has been widely observed, perhaps more interesting has been the integration of ICT4D and internet governance advocates. Unsurprisingly, participants in the most recent meetings (E.103, E.118) of the UN ICT Task Force, which has largely focused efforts mostly on development issues related to ICTs, have also been active in the WSIS. However, the WSIS has also drawn in multiple participants from four recent ICANN meetings (E.116, E.105, E.134), which focuses on policy and governance of the internet. Interestingly, there has not been great overlap of participants between Task Force and ICANN events. This could be attributed to the relative newness of internet governance issues within the UN system.

Based on the evidence suggesting the WSIS as a mobilizing event for a broader CIP movement, it is important to understand what factors beyond that finite process could continue to facilitate interaction of advocates. Potential candidates include international meetings and advocacy organizations.

Individuals and event affiliations

Given that frequency of multiple event affiliations is relatively low, have any events have created specific opportunities for advocate interaction? In Figure 3 (below), individuals are the nodes and links represent common attendance at various international meetings. Links are weighted to reflect the number of events attended by any node pair, and highlighted (i.e., red) to indicate value greater than five. Node shapes represent region

and are sized according to betweenness score, which indicates the extent to which individuals connect a broad diversity of actors through their attendance at events.

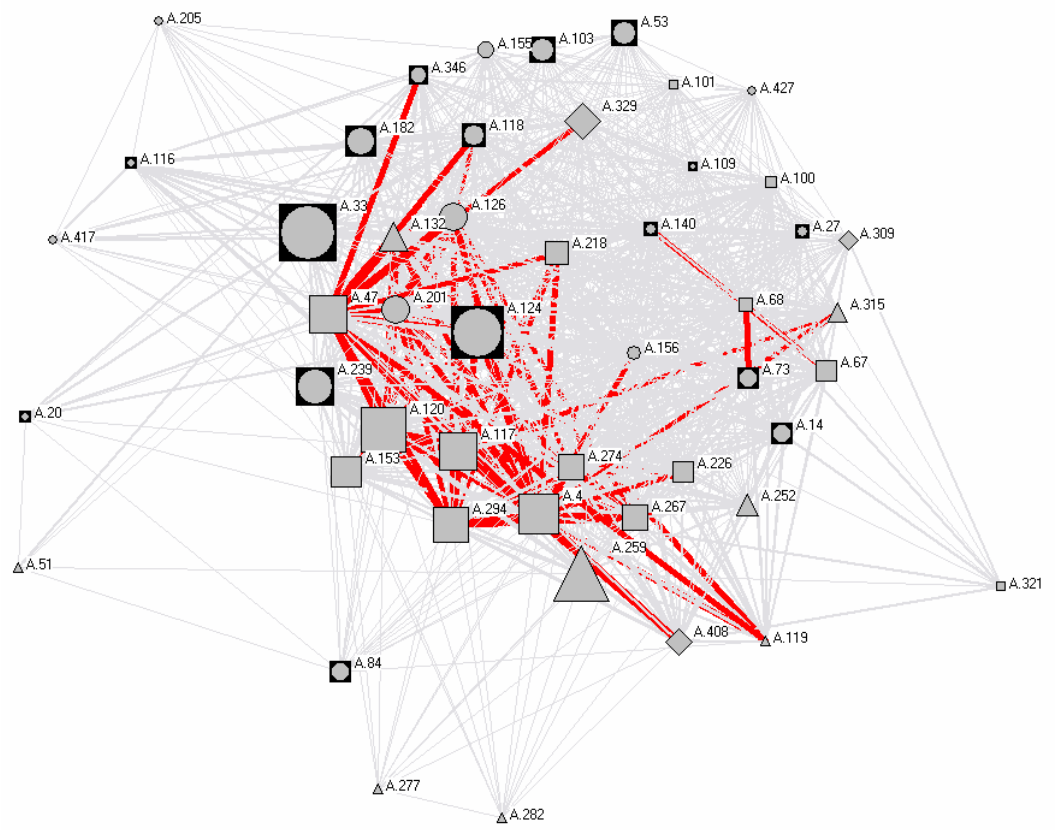

Figure 5: Individual's event affiliation network

A quick glance again confirms the prevalence and interaction of North American and European individuals active in transnational CIP advocacy. There are relatively few advocates from other regions (A.132, A.126, A.201, A.156, A.119, A.408) who have the resources to regularly attend and interact at globally dispersed events. However, there are other more important findings: First, in this network, which examines event affiliations, new individuals emerge as central information brokers. When compared to the interpersonal network discussed in an earlier section, Table 4 (below) highlights the virtual wholesale change in individuals with high betweenness scores. Only individuals A.33, A.4, and A.124 appear in both tables, and A.33 has moved to the top. More issues traditionally associated with the UN also show up (e.g., UN process, media, and human rights). These may be important observations. They possibly suggest that the interpersonal advocacy network around CIP exists/is sustained some other manner than traditional forms of advocacy (e.g., online collaboration).

Table 4: Top 10 individuals in event affiliation network by betweenness scores

Node	Region	Issue	Betweenness
A.33	NA	IPR	1.9085
A.259	AP	UNProcess; Development	1.7741
A.124	NA	UNProcess; Priv & Sec	1.6725
A.120	EU	IntGov	1.4190
A.4	EU	Development; Gender; Priv & Sec; IntGov	1.2083
A.47	EU	IntGov; UNProcess	1.1693
A.239	NA	Media	1.1243
A.117	EU	Priv & Sec; F/OSS	1.1125
A.294	EU	Human Rights	1.0972
A.329	LA	IntGov	0.9142

Second, three of the top ten individuals with high betweenness (A.33, A.259, A.239) do not exhibit high event affiliation with others. Third, some highly affiliated actors (node-pair A.68 and A.73, node-pair A.67 and A.140, all affiliated with the CRIS campaign) are isolated. These observations have ramifications for the broader CIP advocate network when one takes into consideration the issues (e.g., IPR) and regions (e.g., Asia) some of these actors represent.

It is difficult to discern specifics from the network drawing, however, a frequency table (Table 5, below) clearly indicates how few advocates have opportunities to regularly meet face to face. Only 15% of the individuals surveyed were affiliated by 3 or more events and only 5% by 5 or more events. While new forms of organization are arguably occurring and broadening participation in advocacy, the skewed distribution may have particular resonance in CIP, given that many institutional spaces in which CIP issues are debated remain largely driven by traditional forms of face-to-face interaction (e.g., lobbying, plenary sessions, working groups).

Table 5: Individuals and common event affiliations

Common Event Affiliations	Number of Individuals	Percent	Cumulative Percent
1	894	51.44	51.44
2	312	17.95	69.39
3	272	15.65	85.04
4	122	7.02	92.06
5	54	3.11	95.17
6	46	2.65	97.81
7	14	0.81	98.62
8	8	0.46	99.08
9	10	0.58	99.65
10	2	0.12	99.77
11	2	0.12	99.88
12	2	0.12	100.00
Total	1738	100.00	

The skewed distribution of event affiliations also indicates the diversity and complexity of issues included in CIP. It is obvious that many events, held in numerous venues around the globe play a role in shaping advocates' efforts surrounding CIP.

Individuals and organization affiliations

In Figure 5 (below), individuals are the nodes and links represent commonly cited organizations listed as important to one's advocacy work. Links are weighted to reflect the number of organizations cited by any node pair, and highlighted (i.e., red) to indicate value greater than 3. Node shapes represent region and are sized according to betweenness score, which indicates the extent to which an individual, by virtue of their organizational affiliations, connects individual advocates.

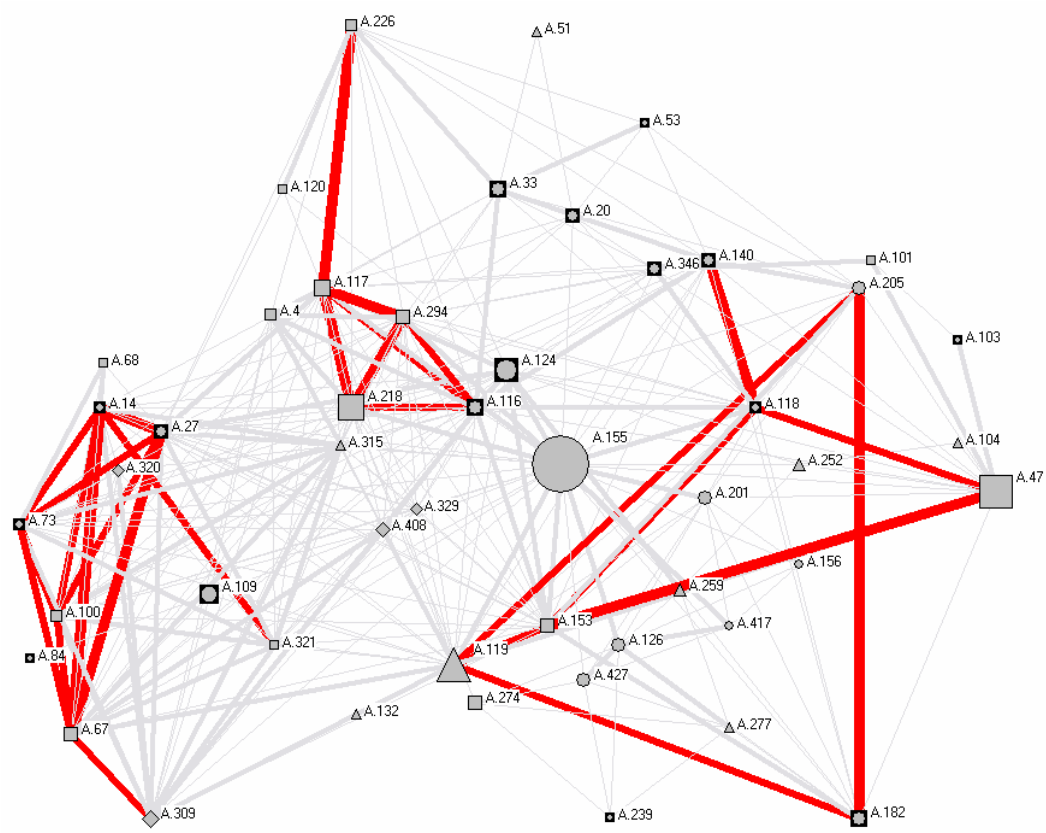

Figure 6: Individual's organization affiliation network

First, it should be noted that individuals overall maintain fewer common organizational affiliations than event affiliations (i.e., there are no node-pairs which have 5 or more organizations in common). Among other reasons, this could be explained by the costs individuals incur to belong to organizations relative to the benefits they offer, or the transient nature of particular organizational types (e.g., caucuses, campaigns) observed in the case studies. Both reasons would be consistent with argument that sustained collective action, particularly by traditional organizations which have real maintenance costs, is difficult to achieve and maintain (Olson, 1966; Walker, 1983).

Where there are higher levels of common organizational affiliation, four distinct issue sub-networks emerge. On the far left are seven actors association with the CRIS campaign, in the middle are four interlinked North American and European advocates active in privacy and human rights. On the far right are two sub-networks. One is composed of internet governance advocates (A.140, A.118, A.47). The other is a triad of internet development advocates, all members of ISOC. One is based in Africa (A.205), one in Asia (A.119), and one in North America (A.182). They are connected to the other triad via A.153, an ISOC member, who is based in the EU.

Again, much like the previously discussed individual events affiliation network, the top ten individual's betweenness scores have changed (see Table 6 below). Two individuals show up in all three affiliation networks discussed (A.33, A.124), one active in IPR, the other in privacy and security and UN processes for civil society participation. This may suggest that these issue areas transcend fora in CIP, whether they are events, organizations or interpersonal networks supported by new forms of collaboration.

Table 6: Top 10 individuals in organization affiliation network by betweenness scores[12]

Node	Region	Issue	Betweenness
A.155	AF	Development	18.6746
A.119	AP	IntGov	9.5258
A.47	EU	IntGov; UNProcess	8.9983
A.218	EU	Human Rights	6.0784
A.124	NA	UNProcess; Priv & Sec	5.5280
A.109	NA	Media	3.8367
A.117	EU	Priv & Sec; F/OSS	3.0127
A.182	NA	IntGov	2.8325
A.116	NA	Priv & Sec; IntGov	2.7925
A.33	NA	IPR	2.4786

Organizations and individual affiliations

In Figure 7 (below), nodes represent organizations and links represent individuals. This network highlights the extent to which any specific CIP related organization serves as a hub for individual interaction, potentially facilitating the development of common ideas across issues addressed by the organizations. Links are weighted and colored to indicate that 3 or more individuals attended an organization pair. Organizations are sized according to their betweenness score, which represents the extent to which an organization links other organizations in the overall network.

Figure 7 clearly shows the importance of the certain organizations in bringing numerous individuals together. By any measure of centrality, the Association for Progressive

[12] While the score of A.155 is computationally correct, I suspect this is a case of extreme situational bias. The subject, an advocate based in Africa, was interviewed at an EPIC sponsored Public Voice Project event held in conjunction with an ICANN meeting in Cape Town, South Africa. Organizational responses included ICANN; although this was the first meeting the individual had attended or has attended since. That being said, the subject may be following the institution more closely now and interacting with advocates active there.

Communications (APC) (node O.7) is the hub of organizational activity in this particular advocate network. In addition to APC, only four other organizations emerge in the top ten across degree, closeness, and betweenness measures. These include the European Digital Rights Initiative (O.71), the CRIS Campaign (O.76), the Electronic Privacy Information Center (O.21), and ICANN (O.74). While APC is well known for the breadth of CIP related issues it addresses, each of the other organizations represent fairly distinct issue areas in the CIP, including privacy and human rights, communication rights, and internet governance.

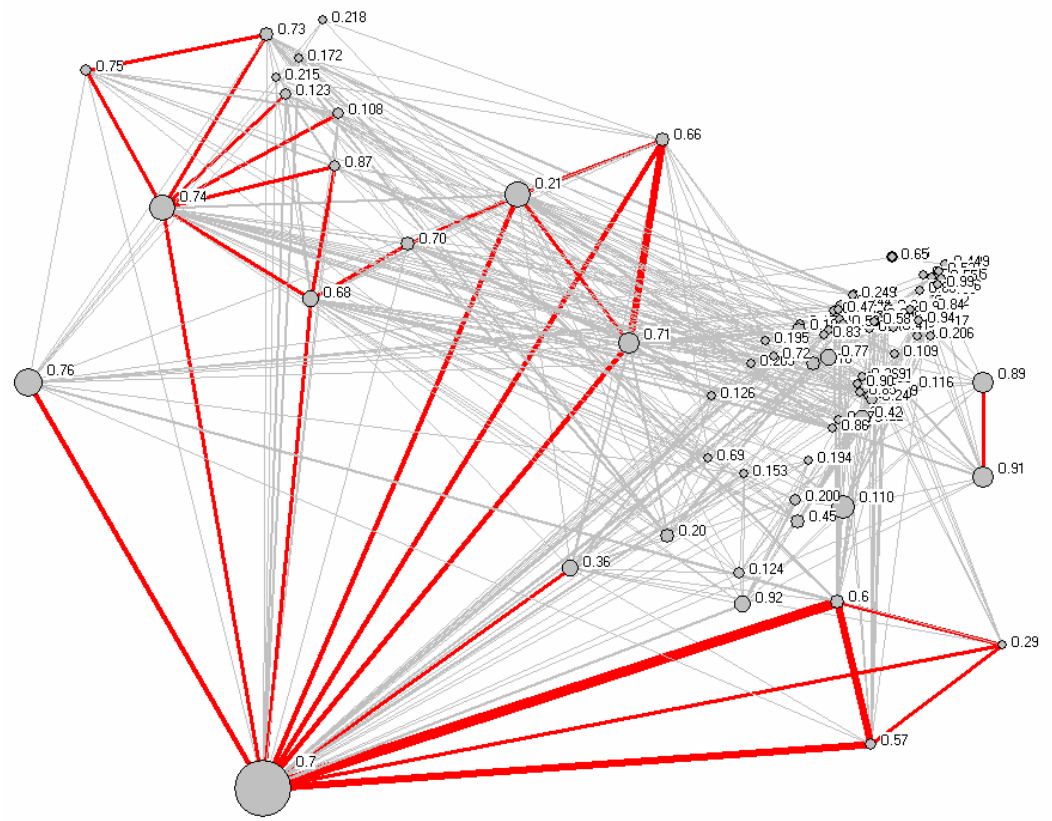

Figure 7: Organization's individual affiliation network

Another interesting observation in this network is the structural isolation of some organizations strongly connected to APC. While the WSIS is a temporal mobilizing event, advocacy organizations are arguably the continuing mobilizing structures. Because of this, it matters how capable they are of facilitating information sharing between organizations. While privacy and human rights organizations and internet governance organizations are integrated by strong individual relationships with each other and with APC, several organizations are not. For instance, the CRIS Campaign and Heinrich Boell Foundation (O.36) are only strongly tied to APC. Francophonie (O.91) and United Nations Economic Commission for Africa (UNECA) (O.89), along with AMARC (O.6), World Association for Christian Communications (O.57), and Free Press (O.29) represent strongly integrated, yet isolated, organizational communities. These structural holes simultaneously present potential opportunities for advocacy entrepreneurs to bridge weakly linked organizations and threats to a broadly conceived social movement in CIP (Burt, 1992).

Conclusions

Given the stage of the research, it is premature to draw any firm conclusions. However, analysis so far suggests the following:

- Different individual networks (interpersonal, affiliation by event or organization) have dramatically different global structures (e.g., number of nodes, links, density, centralization) and individual centrality attributes (particularly betweenness, a proxy for brokerage of information). This is potentially an indication that other organizational forms are developing in CIP advocacy.
- While the factors which hold together some of the individual networks are apparent and perhaps better understood (e.g., the central role of organizations and unique events in mobilizing actors), what maintains the interpersonal networks is underspecified. In practice, it could be new forms of online collaboration enabled by technology which support the interpersonal network, but this may overlook other important factors.
- Assuming new forms of collaboration are underpinning the interpersonal advocacy network, they appear initially to be geographically and substantively inclusive, connecting a variety of issue network sub-structures. There remain, however, distinct shortcomings in the regional distribution of advocates. Internet governance has emerged, among many issues, as a common focus of actors with high betweenness in the network. Other issues (e.g., human rights, communication rights, gender) are integrated are play a framing role, building unity and bringing coherence to a myriad of social, technological and regulatory issues.
- The differences between individual networks extend as well to the issue areas that the prominent actors in those networks primarily address. By one measure, only a few issues – intellectual property, civil society representation in the UN process, and privacy and security – transcend all three of the networks, linking individuals active in many other areas. This perhaps suggests that these issues, and their underlying ideas, may be fertile ground for exploration in developing a broader, intellectually grounded, CIP movement.
- Despite the impact of the WSIS as an important mobilizing event, the strength of ongoing organizational relationships and their positions as information brokers varies (e.g., CRIS, AMARC do not show up in top betweenness scores of the organization network based on individual affiliation). This is important, in that some ideas, strategies and skills are potentially are not shared across organizations, and it highlights the problem that events and organizational struggles for resources can possibly balkanize a broader CIP movement.

References

Borgatti, S. P., & Everett, M. G. (1997). Network Analysis of 2-mode Data. *Social Networks, 19*(3), 243-269.

Borgatti, S.P., Everett, M.G. and Freeman, L.C. 2002. Ucinet for Windows: Software for Social Network Analysis. Harvard, MA: Analytic Technologies.

Borgatti, S. P., & Foster, P. C. (2003). The network paradigm in organizational research: A review and typology. *Journal of Management, 29*(6), 991-1013.

Breiger, R., K. Carley, et al. (2003). Dynamic Social Network Modeling and Analysis: Workshop Summary and Papers. Washington DC, Committee on Human Factors, National Research Council.

Burt, R. (1992). *Structural Holes: The Social Structure of Competition*. Cambridge, MA: Harvard University Press.

Davis, A., Gardner, B. B., & Gardner, M. R. (1941). *Deep South: A Social Anthropological Study of Caste and Class*. Chicago: The University of Chicago Press.

Doreian, P. and K. L. Woodard (1992). "Fixed list versus snowball selection of social networks." Social Science Research 21, 216-233.

Everett, M. G., & Borgatti, S. P. (2005). Extending Centrality. In P. J. Carrington, J. Scott & S. Wasserman (Eds.), *Models and Methods in Social Network Analysis* (pp. 57-76). Cambridge: Cambridge University Press.

Faust, Katherine. 1997. "Centrality in Affiliation Networks." *Social Networks* 19:157-191.

Freeman, L. C. (1977). A set of measures of centrality based on betweenness. *Sociometry* 40, 35-41.

Klein, H. (2004). *Understanding WSIS: An Institutional Analysis of the UN World Summit on the Information Society.* Atlanta, GA: Internet Democracy Project.

Hintz, A. (2005). *Activist Media in Global Governance: Inputs and outputs of the World Summit on the Information Society (WSIS)*. Retrieved October 13, 2005, from http://mokk.bme.hu/centre/conferences/reactivism/FP/fpAH

Mueller, M. (2002). *Ruling the Root: Internet Governance and the Taming of Cyberspace*. Cambridge, Mass: MIT Press.

Newman, M. E. J., Strogatz, S. H., & Watts, D. J. (2001). Random graphs with arbitrary degree distributions and their applications. *Phys. Rev. E, 64*, 026118.

Olson, M. (1966). *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge: Harvard University Press

Patomaki, H., & Teivainen, T. (2004). The World Social Forum: An Open Space or a Movement of Movements? *Theory, Culture & Society, 21*(6), 145-154.

Raboy, M. (2004). The Origins of Civil Society Involvement in the WSIS. *Information Technologies and International Development, 3-4*(1), 95-96.

Rothenberg, R. B. (1995). "Commentary: Sampling in Social Networks." Connections 18(1): 104-110.

Walker, J. L. (1991). *Mobilizing interest groups in America: patrons, professions, and social movements.* Ann Arbor: University of Michigan Press.

Wasserman, Stanley and Katherine Faust. 1994. *Social Network Analysis: Methods and Applications.* Cambridge, UK: Cambridge University Press.

Watts, D. J., & Strogatz, S. H. (1998). Collective dynamics of 'small-world' networks. *Nature, 393*, 440-442.

Appendix 1: Social Network Mapping Protocol

Subject Information

Name:
Organization:
Position (if applicable):
Email:

Mapping

Use pencil if possible. Feel free to make corrections, and change your mind as you create lists. This survey requires you to draw upon years of personal and professional experiences as an advocate in the communication and information policy (CIP) area. You will be creating short lists of people, organizations, events, and publications with whom you interact and which inform your work as an advocate. It may be helpful to have access to your contacts and calendar application as you think about your answers. This way you can easily reference information about people, organizations, events and publications. Feel free to ask me questions if you are uncertain about what to do.

Individuals

Name at least 10 individuals that you correspond or meet with regarding your advocacy work most frequently and consistently over time. Rank order the list, if possible (e.g., 1st, 2nd, 3rd, etc…); you can go beyond 10 if you wish.

		RANK
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____
10.	_____	_____
11.	_____	_____
12.	_____	_____
13.	_____	_____
14.	_____	_____
15.	_____	_____

Organizations

List 10 organizations that your organization works with most closely. Think of organizations you are working with now or have worked with in the last five years. Again, rank order if possible. If there are less than 10, list only as many as you think appropriate.

		RANK
1.	_____	_____
2.	_____	_____
3.	_____	_____

4. _____ _____

5. _____ _____

6. _____ _____

7. _____ _____

8. _____ _____

9. _____ _____

10. _____ _____

Information Sources

List 10 publications/web sites/e-mail lists/newsletters, etc. you consult frequently and consider valuable professionally and inform your opinions. If there are less than 10, list only as many as you think appropriate.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

Events

List international meetings related to your advocacy attended in 2002, 2003, 2004, and 2005. Please specify a month if possible.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. ____

15. ____