

Capacity Development BRIEFS

SHARING KNOWLEDGE AND LESSONS LEARNED

STRENGTHENING NETWORKS: USING ORGANIZATIONAL NETWORK ANALYSIS TO PROMOTE NETWORK EFFECTIVENESS, SCALE, AND ACCOUNTABILITY

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Networks are emerging as an important delivery mechanism for sustainable development; however, reliable network diagnostics are necessary to ensuring accountability and quality to donors and stakeholders and to monitoring, evaluating, and learning from networks. In this brief, the authors examine current practice around networks for development. They describe “organizational network analysis,” a tool applied by Pact’s Capacity Building Services Group¹ in multiple international settings, which can help identify opportunities and improve network effectiveness. The authors conclude by emphasizing that a networked approach can provide innovative solutions to today’s development challenges.

Around the world, donors and nongovernmental organizations (NGOs) are choosing to pursue their missions through networks of long-term partners. This is an acknowledgement of the power in numbers: a single person or organization does not have access to the same information, skills, or resources that a group of people or organizations do working together. When a networked approach is successful, the payoffs can be impressive, connecting people for knowledge sharing, improving service quality, and deepening development outcomes.² In some cases, connecting local resources through networks may also be vital for sustainability and avoiding donor dependency.

Despite this enormous potential, however, an honest assessment of current practice must acknowledge that practitioners and donors have limited understanding of how networks operate. This is particularly challenging due to the difficulties of evaluating the frequency and quality of interactions that are often invisible.

As the dialogue on networking for development intensifies and reaches deeper levels of understanding, institutions are beginning to seek tools that can help to provide baselines, monitor, and evaluate networks, as well as tools that improve network effectiveness. To this end, Pact supported team leaders at the World Bank Institute (WBI) to ask hard questions on the

costs, risks, and benefits associated with network support activities.

WBI’s multidimensional approach to poverty reduction has emphasized networked information and knowledge as a means of building more effective institutions and an enabling environment for concrete development results (World Bank, 2001). A 2007 stocktaking of WBI interventions identified 32 initiatives delivered through networks. Networked approaches to development are employed by all WBI sector teams and are operating in all regions of the world.

Despite the rise in networked approaches to development within WBI, a degree of confusion and

¹ Pact is an international NGO, whose mission is to build empowered communities, effective governments, and responsible private institutions that give people an opportunity for a better life. Pact does this by strengthening the capacity of organizations and institutions to be good service providers, represent their stakeholders, network with others for learning and knowledge sharing, and advocate for social, economic, and environmental justice. Interdependence, responsible stewardship, inclusion of vulnerable groups, and respect for local ownership and knowledge are core values across all of its programs.

² Engel, Keijzer, and Ørnemark (2006), who summarize the arguments of Creech and Willard (2001) and Nunez and Wilson-Grau (2003). See also Liebler and Ferri (2004).



Types of Networks

Many networks defy easy categorization, as they tend to fulfill multiple roles. The ambiguity of the term “network” makes it difficult to pin down its precise meaning. It could mean friends, large organizations, routers along the backbone of the Internet, or as network researcher Duncan Watts points out, neurons firing in the brain. Here is a list of network types of particular interest to capacity building for development:

- *Representative networks* are the most formal type of network associated with WBI work. These are often legally recognized, bounded groups of similar organizations or individuals that coordinate to take advantage of scale. Examples of representative networks include chambers of commerce, InterAction, and the American Medical Association.
- *Action networks* are groups of organizations and/or individuals that coordinate in order to achieve a strategic goal—be it to scale up learning, provide services, or advocate on a policy issue. Action networks often include diverse groups of organizations and/or individuals. Examples of action networks include the Affiliated Network for Social Accountability (ANSA)-Africa, Net Impact, and the Impact Alliance.
- *Knowledge exchange and social networks* are the most informal type of network for capacity development. These networks are primarily trust based and are intended to increase an individual's “social capital” by facilitating connections, diffusing information, and increasing knowledge. Examples of knowledge exchange and social networks include Knowledge Management for Development (KM4D), Linked-In, Facebook, and the WBI Alumni Group.

uncertainty remains on what precisely constitutes a network. Many sector teams are in the business of working through networks without realizing it. Others may understand the business of networks, but do not know how to assess and capture performance. Meanwhile, these teams may be missing out on gains they could be making by applying promising network-strengthening practices. The first step is to make managers and their program constituents aware of what constitutes a network (see box).

Organizational Network Analysis as a Tool for Understanding Networks and Improving Their Effectiveness

One tool that shows great promise for visualizing, monitoring, and understanding networks is organizational network analysis (see box). This approach uses a survey to gather information on collaboration among organizations and/or individuals. The results

of the survey are processed using a software application³ and are presented in network maps as *nodes* (the organizations or individuals) and *links* (flows of collaboration, resources, and so on).

Network metrics generated using organizational network analysis bridge the computational skills of mathematicians and physicists with the insights of sociologists, and economists. Each of the metrics provides deeper information about interactions across networks and about key actors within networks. These include the following:

- *Network density*, calculated by dividing the number of links in a network by the total number of links that would exist if every node were linked to every other node. The higher the *network density*, the more interconnected are the organizations within the network. An intervention that is intended to build or strengthen a network would expect to report an increase in *network density* with time.
- *Degree* scores describe the number of connections that an individual node has. Nodes with high “degrees out” scores are those individuals or organizations that report having large numbers of links with others. These are the most active networkers and promoters. Nodes with high “degrees in” scores are “connectors” that represent information hubs considered to be of high value by other actors in the network.
- *Betweenness* scores describe the extent to which an individual node acts as a bridge between otherwise unconnected groups in a network. Nodes with high “betweenness” scores are powerful actors with the potential to make or break overall network effectiveness—either acting as bridges or bottlenecks for information and resources.

Organizational Network Analysis

Organizational network analysis views network relationships in terms of nodes and links. Nodes are the individual actors (organizations or individuals) within the network, and links are the relationships between the actors.

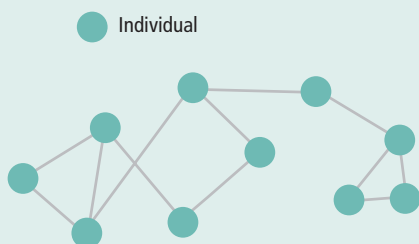


Figure 1a: A Hub-and-Spoke Network

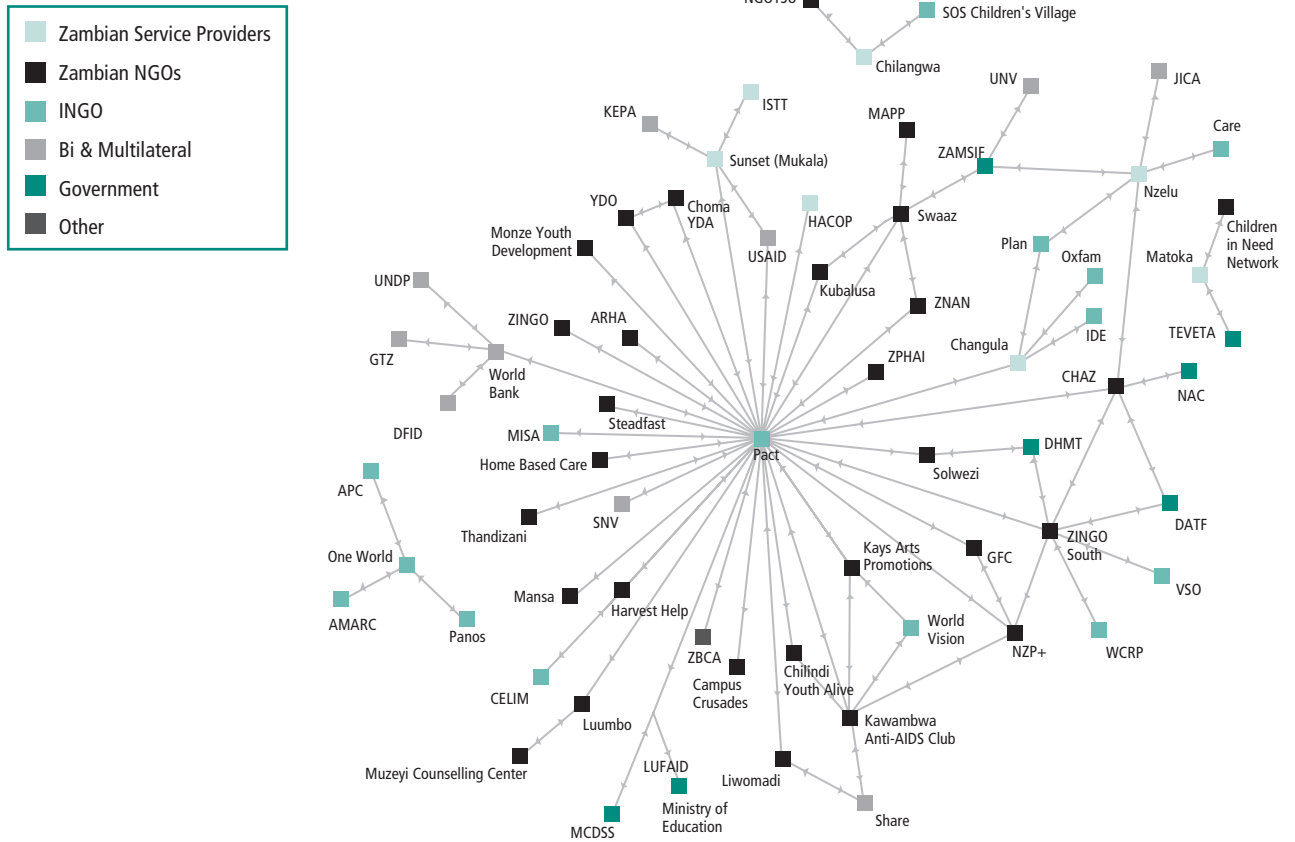


Figure 1b: The Network without a Hub

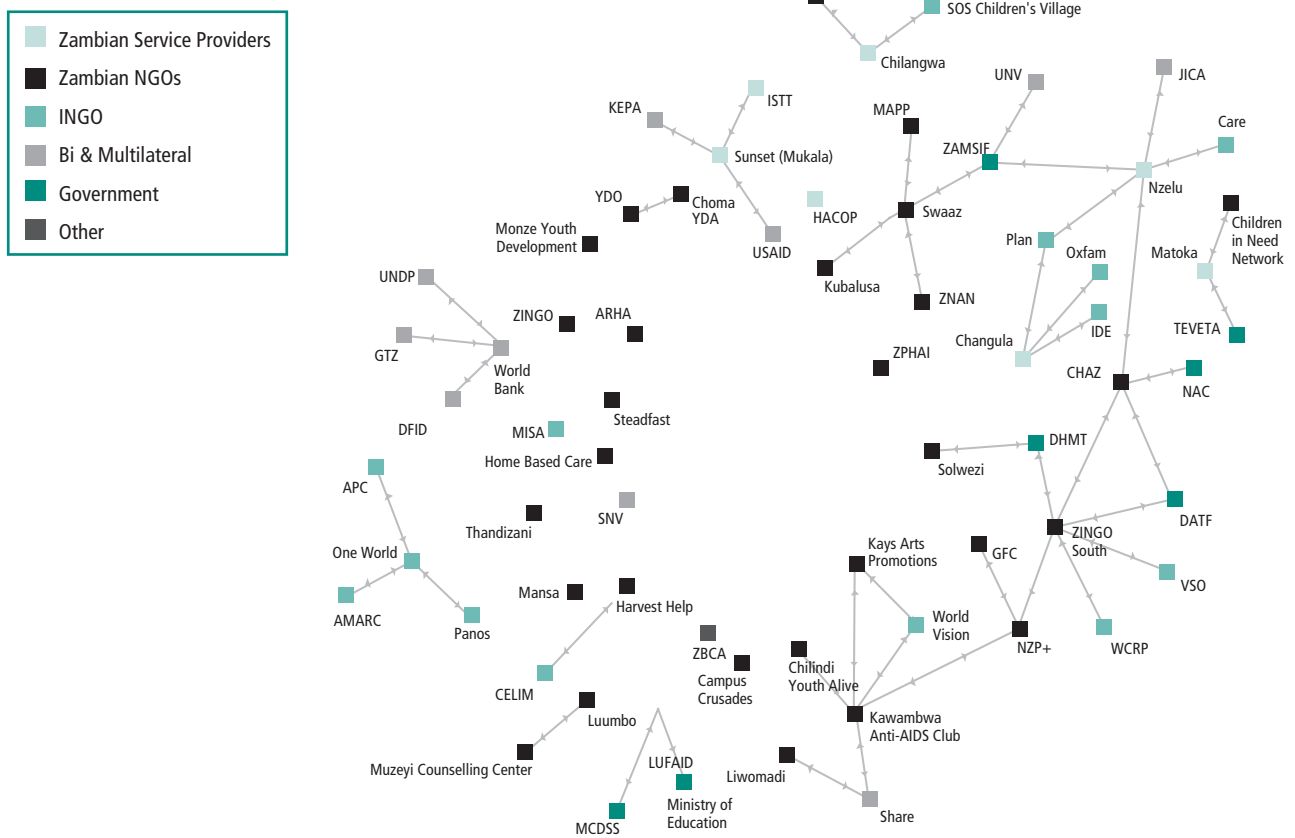


Figure 2a: Weak Ties among Country Office Teams

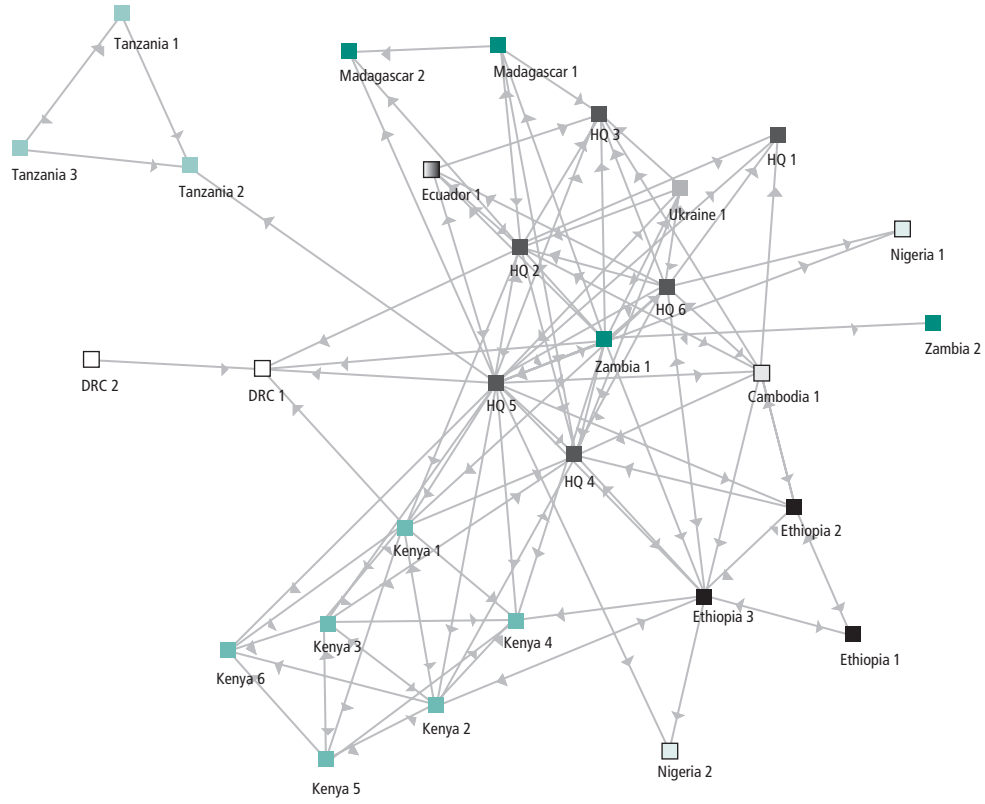
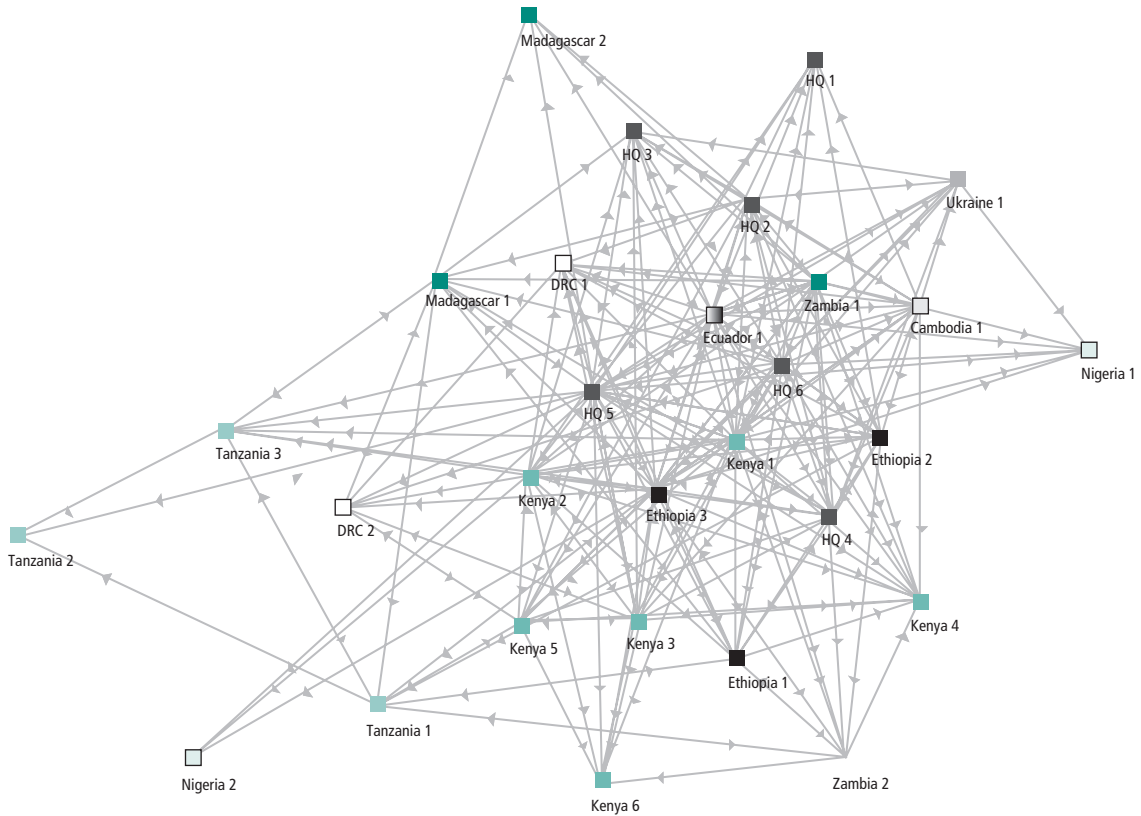


Figure 2b: New Links and Connections



- *Centrality* is a score for the entire network that describes the extent to which the network relies on a small number of bridging nodes for connectivity. In a network with high centrality, the removal of a few key bridging nodes can lead to the breakup of the entire network. Where centrality is lower, the network is less vulnerable to the loss of key actors and interactions are more sustainable.
- *Reach* describes the percentage of a network that can be accessed within two steps by individual members. The greater the reach of a node, the better access it has to information and resources within the network.

Network Analysis and the International Development Sector

The application of network analysis—for the purpose of visualizing patterns of information flow and collaboration among individuals and groups—is rising among numerous corporations, including American Express, British Petroleum, IBM, McKinsey, and Microsoft. The use of organizational network analysis in international development is also increasing, including Pact’s work in mapping and supporting networks in Zambia, Malawi, Cyprus, Cambodia, Ecuador, Bolivia, and the Philippines.⁴

Pact has found that, in many networks for development, international organizations play the role of convener, distributing resources and brokering collaboration among local organizations. These local organizations in turn provide services to communities and people in need.

In practice, these networks take a hub-and-spoke form—the international organization in the center creates strong links with local organizations around the periphery. Links among individual local organizations are often weak or nonexistent. Pact’s research has found this hub-and-spoke pattern repeated in numerous development contexts—including Zambia, Bolivia, and Malawi—and sectors—HIV/AIDS, conservation, and governance.

Although hub-and-spoke networks are effective delivery mechanisms for development interventions, they do not necessarily create the links among local actors that would facilitate a sustainable network beyond the life of the funded intervention. Figure 1a is an example of a hub-and-spoke network showing collaboration among organizational participants in one of Pact’s capacity development programs in Zambia. This particular network analysis was undertaken midway in a five-year program.

The first map shows that Pact has succeeded in connecting with local organizations, facilitating the flow of information and resources throughout this 60-node network; however, Pact also plays the central role in

brokering and supporting communication among local organizations in the network. The overall network has a high centralization score, indicating that it is exceptionally vulnerable to the loss of its central member, Pact.

Figure 1b shows what would happen if Pact were removed from this network. Without Pact, the network splinters into numerous smaller clusters, the largest of which contains only 29 participants.

Moving beyond the hub-and-spoke model requires engaging in “network weaving” activities—the creation of new interactions among isolated clusters. Network weavers must have the vision, energy, and data to connect with diverse individuals and groups and start information flowing among local actors, as well as external links outside the community to introduce new information and ideas into the network (Krebs and Holley, 2006).

As a result of the Zambia organizational network analysis and ensuing strategic discussions with project stakeholders, Pact was able to redesign its program there to promote greater focus on network-weaving activities. Emphasis was placed on collaboration with participants with the greatest “betweenness” scores. This meant developing local communities of practice and quality circles (sharing and learning teams), hosting a “marketplace of innovation,” and investing in a talent locator and referral system to link civil society organizations with international organizations, local government, and local media.

Another common challenge facing network weavers is how to bridge the gaps among clusters of individuals or organizations that operate in different sectors, locations, and cultures. Network theory argues that these “weak ties” that span traditional boundaries can act as powerful conduits for generating ideas, mobilizing resources, and scaling up promising practices (Granovetter, 1973).

Figure 2a shows how Pact has used organizational network analysis to catalyze the development of boundary-spanning “weak ties” among country office teams. The first map shows a baseline of collaboration among members of a global network of democracy and governance experts. The map and its associated performance metrics shows that much of the interaction occurs within individual country offices. Participants from Madagascar, Ethiopia, Democratic Republic of Congo (DRC), Kenya, and in particular, Tanzania are all closely clustered by country office and engage in relatively minimal interaction that spans the boundaries among clusters.

Headquarters (HQ) staff also play a vital role as brokers within the network, relaying knowledge and

³ Two commonly used organizational network analysis software packages are InFlow (www.orgnet.com) and UCINET (www.analytictech.com/ucinet/ucinet.htm)

⁴ Bloom, Kummer, and Reeves (2006).

resources among the group's diverse regions. In the most extreme case, interactions between democracy and governance experts in neighboring Kenya and Tanzania are brokered by the headquarters (HQ5) node residing in Washington, D.C.

By connecting country-level experts through learning labs and a community of practice, Pact was able to "weave" new connections into the network (see figure 2b). These new ties span geographic boundaries and facilitate idea and resource exchange in new and powerful ways. This example both highlights the power of organizational network analysis as a tool for understanding interactions within networks, as well as the power of deliberate network-weaving strategies for developing sustainable networks that support flows of information, ideas, and resources among diverse stakeholders.

Conclusion

Innovative solutions to development problems require adopting a network mind set. But the considerable benefits of networks cannot be easily achieved without acknowledgment of the "science of networks" and the analytical power of organizational network analysis. If an organization or a manager has not considered the strong possibility that they are already deeply affected by network dynamics, they are missing out on ways to improve performance and enhance sustainability. High-performing networks are a perennial challenge. By their very nature, networks require management of complex relationships and often require upfront costs that should ultimately yield higher returns and more leveraged resources in the long run. Making real inroads is possible by ensuring that managers understand these network principles and have tools at their disposal to meet their responsibilities as stewards of networked initiatives.

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