

M · A · P · P · I · N · G

YOUR N · E · T · W · O · R · K

This Guide is part of our Network Know-How Guide series, a collection of six easy-to-use resources highlighting key network design and management principles for social impact network builders. Each Guide includes real-world examples of network principles in practice and clarifying questions to help you reflect on your network practice, focus your network strategy and develop an effective network plan.

The Network Know-How Guides were created by Network Impact, subject matter experts in the field of network theory. Network Impact created the guides for the Network Incubator, a program that ran from 2016 to 2018 for select members of ROI Community, a signature initiative of Charles and Lynn Schusterman Family Philanthropies.

The guides formed the basis for the Network Incubator curriculum and proved useful to the emerging networks that were part of the program. Schusterman Family Philanthropies worked with ROI Community and Network Impact to repurpose the guides as a publicly available resource to help developing and established network leaders further their work and scale their impact.

The case studies of emerging networks in the guides reflect organizations Network Impact worked with through the Network Incubator and in other settings. The networks featured are not necessarily grantees of Schusterman Family Philanthropies.

The **Network Know-How Guide: Getting Started** includes an overview of the key themes each Guide covers as well as a self-assessment to help you determine which Network Know-How Guides will be most relevant for you and your network.

[Download all of the Network Know-How Guides here.](#)

This Mapping Your Network Guide addresses three common questions from network builders:

- **What could we learn** from mapping our network?
- **When and how often** should we map our network?
- **What data** can we use to map our network?

Mapping Your Network includes the following sections:

5 Why Map Your Network?

8 Mapping Fundamentals

10 Mapping Approaches

20 Mapping Tools

23 Additional Resources on Network Mapping

Mapping Your Network

Connectivity is the lifeblood of a network.

Strong relationships between members mean they can easily exchange knowledge, information and ideas. Creating a network map will give you a bird's eye view of who connects with whom and how those connections form. By mapping your network, you can analyze patterns of connectivity, information flows and knowledge gaps—all of which can inform strategies to build and strengthen connections.



Network Snapshot

Mensch is a vibrant network of over 100 Jewish social changemakers in South Africa. Established in 2014, the Mensch Network brings together Jewish people working to create positive change in South Africa for all.

Executive Director Gina Flash knew that the Mensch Network of changemakers in South Africa was helping people forge new connections, but she didn't have a complete picture of how these relationships were benefiting members. To get a clearer picture of the network's potential, she and the Mensch team facilitated a network mapping activity at a member retreat to explore members' current connections first, followed by those they would like to connect with. The map of connections members created that day helped the Mensch team think strategically about deepening members' connections within and across key issue areas through their program and how to create more opportunities for peer learning and exchange.



W·H·Y M·A·P Y·O·U·R N·E·T·W·O·R·K?

Should you invest more in helping network members build relationships? How effective are your current strategies, and how can you refine them? Taking the time to map a network can benefit networks of all kinds, including those that start with connecting at an event.

Exploring network maps can also help all network members become more active network builders. Many networks review the results of network mapping at member gatherings to highlight collective insights, identify factors that drive connectivity and brainstorm ways members could be more active in building or strengthening network ties.

Before You Start Mapping, Determine What You Will Gain

Visualizing data with mapping software or mapping your network by hand requires members' time and effort.

Ask yourself: Is this a good use of people's attention and energy at this stage of the network's development? Think about the different ways that mapping might be useful so that you can:

1 Decide if mapping would be a helpful activity for you and your program

2 Explain to stakeholders what you hope to achieve if you decide to conduct a mapping exercise

After completing Reflection Activity 1 (found on the next page), review your responses to help you decide if you will use network mapping to improve you network strategy.



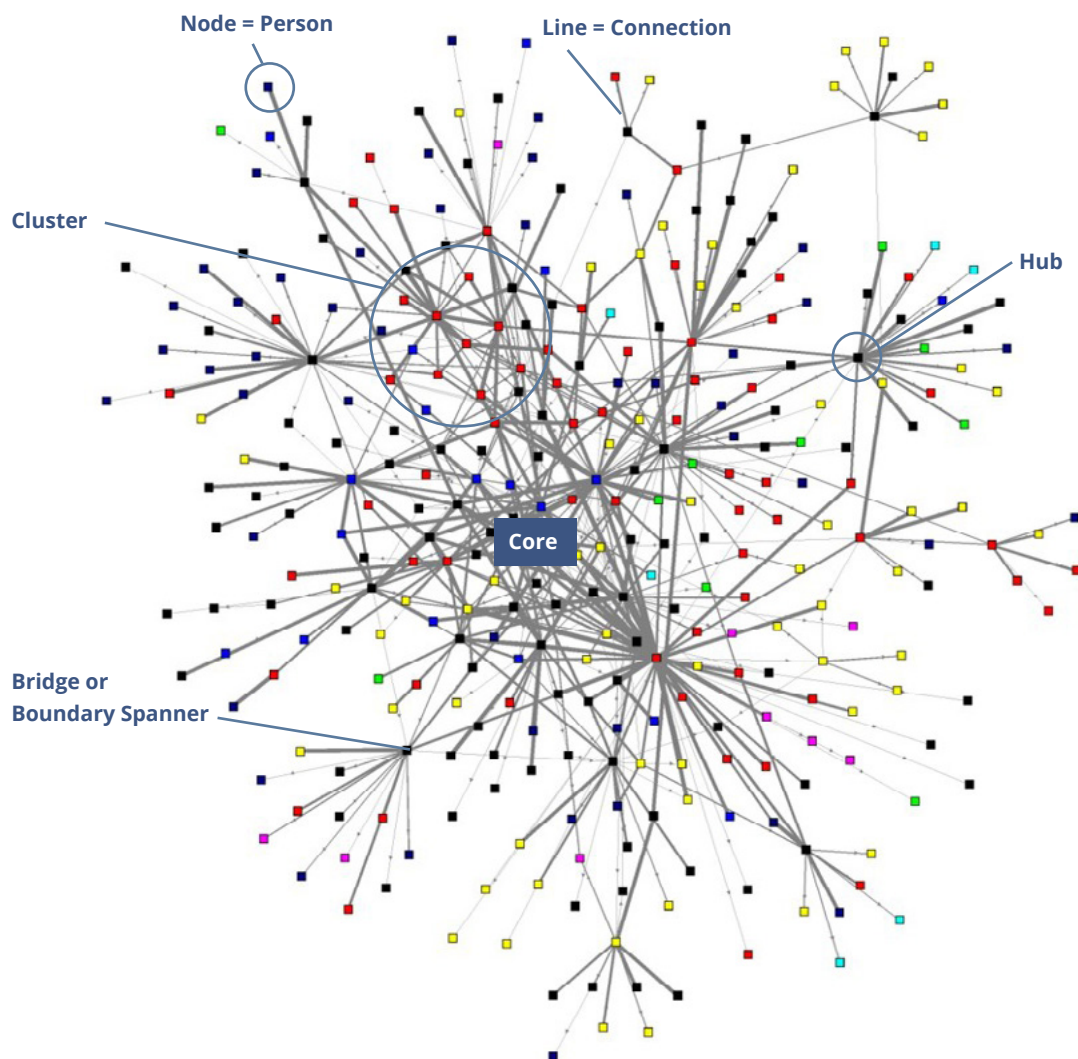
M·A·P·P·I·N·G F·U·N·D·A·M·E·N·T·A·L·S:

A QUICK REVIEW OF NETWORK
MAP ELEMENTS



Before you start a network mapping activity, it is helpful to know some basic network mapping terms:

- **Nodes** depict people or organizations, commonly represented by points or circles.
- **Lines** depict connections or relationships between nodes.
- **Hubs** are nodes with many direct connections. Hubs tend to be individuals or organizations that are well-positioned to facilitate the flow of ideas and information.
- **Clusters** are groups of interconnected nodes.
- **Bridgers** or **boundary spanners** are nodes that connect different clusters.
- The **core** of a network refers to the most closely connected network members. Most network mapping software algorithms place core members at the center of the network map.





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You can map your network in a variety of ways to show existing connections among members.

This includes in-person activities, using existing data (such as social media analytics or event participation rosters) or by contacting members to collect specific information about individual relationships. If your network is relatively small (e.g., under 30 nodes), mapping member connections might be as easy as drawing on a whiteboard. But for larger, more complex networks, specialized tools can precisely measure and map the pattern of ties among members.

Network mapping software that incorporates Social Network Analysis (SNA) offers many advantages, including analyzing connectivity patterns with greater accuracy and greater ease in tracking patterns over time. (See the “Mapping Tools” section in this Guide for more information on specific mapping tools and programs.) While network maps that show the presence or absence of a connection are helpful, mapping is most beneficial when it includes information about the quality of connections between members—including how and why members are connecting.

Different ways of mapping require different levels of engagement from members.

The examples in this Guide highlight three common approaches to network mapping:

- **Ask** members directly about their connections via surveys.
- **Map** existing data such as social media data or event participation rosters.
- **Hold** in-person activities during which members draw a network map.

Social Network Analysis

Social Network Analysis (SNA) is a set of theories, tools and processes for understanding the relationships and structures of a network. SNA metrics use mathematical algorithms to measure individual status or position in a network and networkwide patterns. Networkwide measures include network centrality (the average number of direct ties between members in a network) and network density (the ratio of existing ties to all possible ties in a network). Networks often use these broad measures of network connectivity to illustrate group-formation patterns and optimal conditions for group cohesion.

In Practice: Creating Maps to Track the Evolution of Urban Sustainability Directors Network

When a majority of participants expressed a desire to form a network at an in-person gathering, the members of the Urban Sustainability Directors Network (USDN) decided to start mapping right away. After that meeting, and every year since, USDN has repeated this mapping process to track changes in members' connectivity to inform their network strategy.

By gathering information from members about how they interact—whether through network-sponsored activities or separately organized events—USDN felt that members themselves would reveal the best approach for expanding, enriching and activating the network.

Below is the survey question USDN uses to collect network mapping data over time. The question includes a list of all USDN members (they started with 30 and are now at about 85). Respondents review the list of network members and specify the quality of their connection to each person on the list.

SURVEY QUESTION: Every year we ask you to describe your connectivity to other USDN members because connectivity within the network is a crucial indicator of the network's well-being.

Please take the time to indicate which of the descriptions fit your connection to each member. If you have no connection at all, leave the answer blank. We know this takes some time to complete and appreciate your participation. Thank you.

I have been introduced to this person but do not exchange information with them on a regular basis:

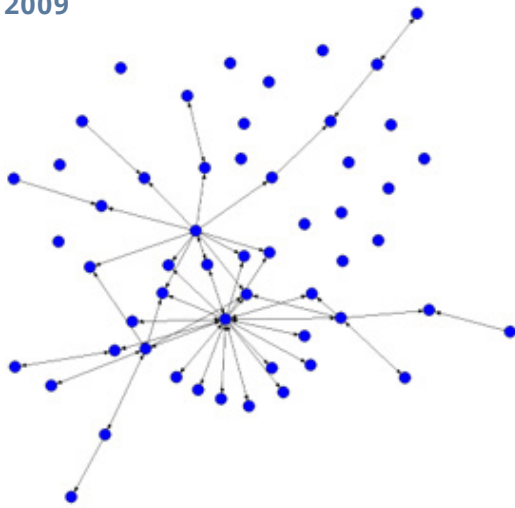
I exchange useful information with this person on a regular basis but have not/do not work with them on a project.

I exchange useful information with this person on a regular basis, and I have/do work with them on one or more projects.

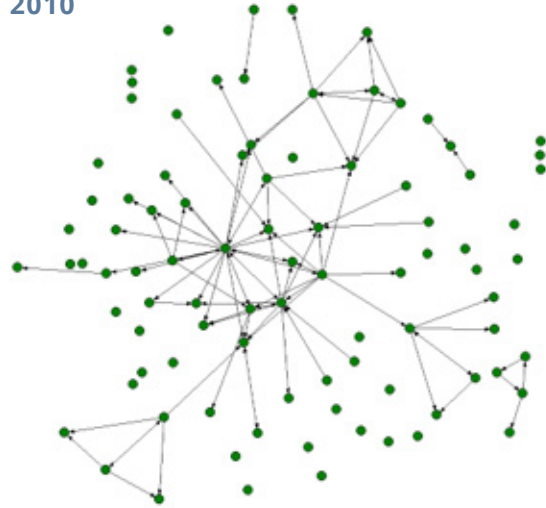
I depend on this person regularly for important advice and have worked with them on one or more projects.

The maps below that USDN created with answers to the survey question illustrate the overall growth in connectivity year to year. The SNA metrics show a more than threefold increase in network density and a 466% increase in the average number of connections from 2009 to 2012 (1.2 to 6.8). In USDN's case, two main factors contributed to this notable increase: USDN routinely held gatherings to deliberately connect members in the same geography or with similar topical interests and members often connected based on information about their peers that they accessed through the network. **Remember: On network maps, nodes represent people, and lines stand for existing relationships between those people.**

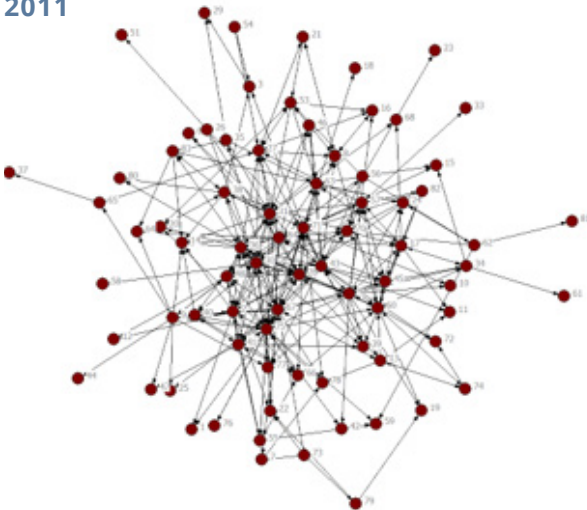
2009



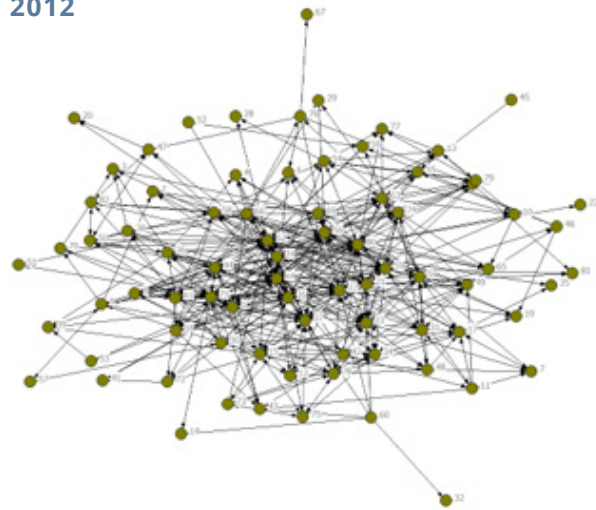
2010



2011



2012



Year	#	Density	Avg # ties
2009	55	2.2%	1.2
2010	90	2.7%	2.4
2011	85	5.3%	4.5
2012	82	8%	6.88

In Practice: Using Maps to Demonstrate the Spread of Innovative Ideas Among Stanton Fellowship Alumni

The Durfee Foundation took a slightly different approach when mapping connections among alumni of their Stanton Fellowship—a program designed to support leaders of social change in Los Angeles. Because spreading innovation was the Stanton Fellowship’s goal, they asked alumni about connections that existed before and after the fellowship, including connections that provided “information that led to new thinking or framing that has been useful to me.” The survey listed all network members (35 members at the time of the survey), and asked respondents about the quality of their connection to each individual.

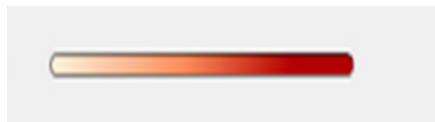
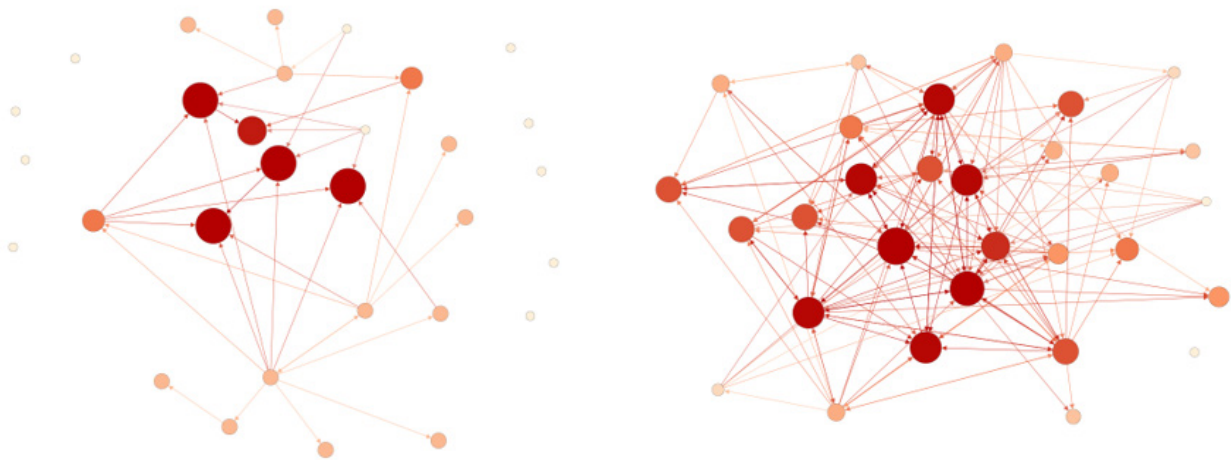
SURVEY QUESTION *(asked twice: connection before becoming a fellow and connection after)*

Please check all statements that apply to your connection to each of the other members:

- I do not know this person.
- I have been introduced but do not exchange information with them on a regular basis (less than 1x per quarter).
- I exchange useful information (knowledge, connections to new people, different perspectives) with this person on a regular basis (at least 1x per quarter).
- Information I received from this person has led to new thinking or framing that has been useful to me/my organization.
- I have worked or am working directly with this person to devise or implement a community solution.

The first map below shows connections that led to new thinking before joining the network. The second map shows the significant increase in connections that led to new thinking after joining the network. Based on their findings, along with follow-up discussions with alumni, the Durfee team modified their program to more deliberately focus on peer-to-peer exchange to support connections that lead to the spread of innovation. They made peer sharing an expectation of the fellowship and adapted their selection process to recruit fellows who could benefit most from peer learning. The team also adjusted program activities to create and strengthen peer connections.

Before and After Stanton Fellowship



More than 300% increase in connections that provided “information that led to new thinking or framing that has been useful to me.”

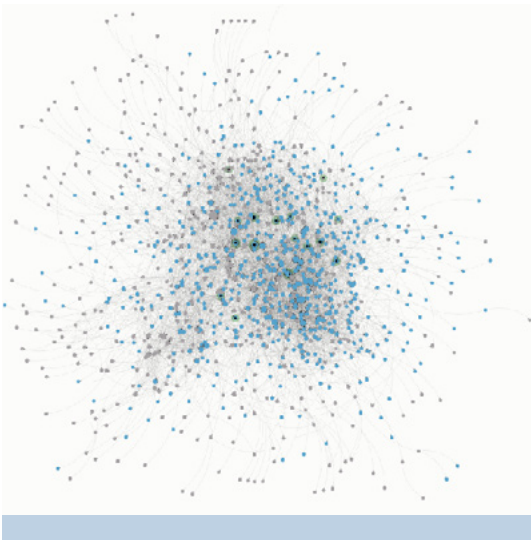
Maps created using Gephi

In Practice: Adjusting the Mapping Process as a Tool for Larger, More Complex Networks Like ROI Community

In larger networks (about 100 members), it can be cumbersome for members to report their connections to every member. In these cases, it may be more beneficial to ask members about their most important connections. ROI Community, an initiative of Charles and Lynn Schusterman Family Philanthropies, is a global network of more than 1,600 rising Jewish leaders who transform Jewish life and foster positive social change globally. ROI aims to enable its members to fulfill their potential as changemakers by providing them with the tools, network and inspiration to create a positive impact on Israel, the Jewish people and the world. In 2017, ROI sent a survey to its members to learn more about their connections to each other and the role of ROI Community in encouraging member-to-member ties and community building. In the survey, ROI asked members to *“Help us map our network! ROI wants to understand the extent to which members are connected to one another. Please provide the names of up to 10 ROIs with whom you have the most important or significant relationships (i.e., people you have met through ROI that are the most helpful, connected, supportive, trustworthy, etc.).”*

One of the most valuable insights from the mapping process was identifying “Igniters” as important hubs in the network. Igniters are network members who volunteer to generate opportunities for ROI members to connect socially and professionally in their local communities. The mapping results clearly showed the role that Igniters play, with Igniters averaging more than twice as many connections as other members (22.44 compared with 9.74). In the ROI Community map, the number of connections a person has correlated to the node’s size (the larger the node, the greater the number of connections), and Igniters are highlighted in green. To further increase the connectivity between network members, ROI decided to focus more on grassroots collaboration among members, aiming to create more hubs on their network map.

ROI Community: Igniters are highly connected hubs for the network.



Igniters & ROI Summit

- Igniter
- Attended an ROI Summit (2012-2017)
- Sized by Indegree

Maps created using Kumu

Igniters have a 130% greater average number of connections.

Average # of connections:

Igniters: 22.44

All members: 9.74

Other Ways to Gather Data for Mapping

Not all network mapping requires a survey. In fact, you can create network maps using existing data about interactions between members—data you can get from social networks like Twitter, LinkedIn, Facebook and other online community platforms. If you want to learn more about mapping social media data, read this [great step-by-step explanation](#) of how the Pew Research Center analyzes Twitter data.

Ready to Get Started?

Some conversations are better face to face, for example, consider discussing network connections at an in-person network mapping event. There are many ways to make these activities engaging—for example, having participants create maps collaboratively using simple materials like paper, markers and Post-it notes. This hands-on approach helps members understand why network maps are useful, and stakeholders appreciate the value of a more comprehensive mapping process. This informative [blog post](#) by Full Circle Associates offers tips for facilitating an in-person network mapping activity that will show who is connecting, how they're doing it and where new connections may be needed.

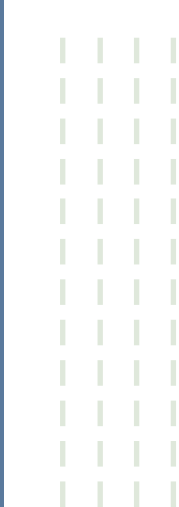
In Practice: In-Person Mapping Activity

As described on page 4, the Mensch team had network members participate in a face-to-face mapping activity. The Mensch team asked participants to use pieces of green string to link their own photos to photos of other members they were already connected to, and in another color, those they wanted to connect to and learn from. The activity helped both Mensch members and the team “see” the network as a whole and brainstorm ways to build and strengthen ties.



Photo credit: Guy Lerner

Asking members to use different colors of string or marker to stand for a) people they connect with already and b) people they would like to connect with in the future gave everyone a more nuanced picture of existing and potential ties that network programming could address.



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T·O·O·L·S

Network mapping software options are ever evolving and vary in cost.

While there is no universal tool that provides a one-size-fits-all approach to network mapping, **Kumu** or **Polinode** are notable programs we have found to be useful and not too expensive if you're just starting out.

With **Kumu**, you can create basic maps by manually adding one node at a time or uploading an Excel spreadsheet of data gathered via an online survey, social media or other means. There are also software options such as [sumApp](#) that you can use to streamline the survey and data conversion and import process. With the web-based platform, you can quickly update and share your maps. ([See a Kumu.io example map.](#)) Furthermore, if you want to explore results with members, **Kumu** has easy ways for people to interact with maps.

Polinode lets you integrate surveying and mapping, making basic connectivity maps accessible for first-time users. As a web-based platform, Polinode makes sharing results fast and easy.

Gephi is a great candidate for larger networks that need a full range of metrics. This powerful program offers a more sophisticated suite of analytics for more complex datasets.

NodeXL is a useful tool for obtaining social media data to use as a starting point for mapping. However, people typically use it with another program. For example, it is common to import NodeXL data into Gephi to create maps.

Review the chart on the next page for a side-by-side comparison of these popular tools, including ratings of key qualities.

TOOL	DESCRIPTION	COST	EASE OF USE	SNA METRICS	LARGE DATA SETS	PROS/CONS
Gephi	Gephi is a powerful, open-source data analysis and visualization tool that you download onto your computer.	Free	● ●	● ● ●	● ● ●	<p>Pros: You can adjust views and layouts to produce a full range of SNA metrics. Gephi has active user groups to respond to questions and can handle large datasets.</p> <p>Cons: Sophisticated capability can make it time-consuming to create and modify maps.</p>
Kumu	Kumu is a web-based visualization and analysis software that positions itself to be more user-friendly than other mapping tools on the market.	Free version if your maps are publicly accessible. If you want them to be private, there is a small monthly fee.	● ● ●	● ●	● ●	<p>Pros: Maps are interactive so that you can share them easily. Users can zoom into clusters to view detailed information about individual nodes. You can create maps quickly and easily make additions or edits.</p> <p>Cons: The system slows when the number of connections is large (e.g., years of Twitter data). Kumu offers more limited SNA metrics than some other tools.</p>
NodeXL	NodeXL is an open-source software you download that integrates into Microsoft Excel and calculates the core set of network metrics and scores.	The basic version is free; the pro version license is \$199 USD for one year.	●	● ● ●	● ● ●	<p>Pros: The program offers a full range of SNA metrics. You can use it to extract data from Twitter, YouTube, Facebook, Wiki and Flickr social networks (within limited time and data parameters).</p> <p>Cons: While there are tutorials available, the interface is not particularly user-friendly.</p>
Polinode (Polinode Networks & Polinode Surveys)	Polinode Networks allows you to upload network data to their “cloud,” where you can interact with, visualize and analyze it. Polinode Surveys allows you to both collect and analyze network data.	Free, public accounts are limited to less than 250 nodes. They offer a 30% discount for nonprofits.	● ● ●	● ●	● ●	<p>Pros: All-in-one platform allows you to map connectivity data directly from responses to basic surveys.</p> <p>Cons: There is a monthly fee to use advanced SNA metrics and host the network privately. Also, for very large networks (>50,000 nodes), it is not recommended.</p>

● ● ● Excellent ● ● Reasonable ● Needs Improvement



ADDITIONAL
RESOURCES
ON NETWORK
MAPPING

Featured Networks in This Guide

Mensch Network

A vibrant network of over 100 Jewish social change-makers in South Africa. Established in 2014, the Mensch Network brings together Jewish people working to create positive change in South Africa for all. Network members lead, work or volunteer in nonprofit organizations, social enterprises, public health and education, and more. The Mensch Network creates a Jewish platform to support and develop these individuals, enhancing their collective impact; and for the Jewish community to engage via these individuals in active citizenship.

www.mensch.org.za

ROI Community

ROI Community, an initiative of Charles and Lynn Schusterman Family Philanthropies, is a global network of more than 1,600 rising Jewish leaders who transform Jewish life and foster positive social change globally. ROI aims to enable its members to fulfill their potential as changemakers by providing them with the tools, network and inspiration to create a positive impact on Israel, the Jewish people and the world. www.roicommunity.org

Stanton Fellowship Alumni

A Durfee Foundation fellowship that aims to create a cross-disciplinary network of Los Angeles leaders that share ideas, resources and new approaches to address the city's most vexing issues and improve life for the people of LA. www.durfee.org/our-programs/stanton-fellowship/

Urban Sustainability Directors Network (USDN)

A network of local government professionals across the United States and Canada who exchange information, collaborate to enhance their practice and work together to advance the field of urban sustainability. www.usdn.org

Further Reading

"Social Network Analysis Made Easy," Jeff Mohr, Kumu.io

Net Work: Practical Guide to Creating and Sustaining Networks at Work and in the World, Patti Anklam

Social Network Analysis: An Introduction, Valdis Krebs

"Asking the Right Questions: Collecting Meaningful Data About Your Network," David Ehrlichman & Matthew Spence, Converge

Network Weaver Handbook, June Holley





Network Impact conducts research, builds tools and provides advice to change agents who are building and using networks for increased impact. Over the last decade, Network Impact has developed frameworks and tools to monitor a network's development so that network members, organizers and supporters can be more deliberate in their efforts to support effective network practice. Find more information and resources at www.NetworkImpact.org.

Acknowledgments



Thanks to the network builders that have shared their experiences, questions and lessons.



CHARLES AND LYNN
SCHUSTERMAN
FAMILY PHILANTHROPIES



Charles and Lynn Schusterman Family Philanthropies strives for a future in which the United States and Israel live up to their highest ideals and achieve more just and inclusive societies. We work to advance racial, gender and economic equity in the U.S., as well as to foster a more joyful and diverse Jewish community. In Israel, we work toward a secure homeland for the Jewish people, a thriving democracy and an inclusive society that cares for its most vulnerable. We aim to drive and support long-term systemic change through investments in leaders, organizations and U.S. public policy. www.schusterman.org