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Enhancing Civil Affairs Assessments with Social Network Analysis

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Foreword

The Joint Special Operations University (JSOU) partnered with the Special Operations and Low Intensity Conflict (SO/LIC) Chapter of the National Defense Industrial Association (NDIA) in sponsoring the annual chapter essay contest. The first-place winner is recognized each year at the NDIA SO/LIC Symposium in mid-February, and the prize is $1,000 cash. The runner-up receives $500.

The competition is open to resident and nonresident students attending Professional Military Education (PME) institutions and has produced outstanding works on special operations issues. These essays provide current insights on what our PME students see as priority national security issues affecting special operations.

Essay contestants can choose any topic related to special operations. Submissions include hard-hitting and relevant recommendations that many Special Operations Forces commanders throughout United States Special Operations Command find very useful. Some entries submitted are a synopsis of the larger research project required for graduation or an advanced degree, while others are written specifically for the essay contest. Regardless of approach, these essays add value to the individuals’ professional development, provide an outlet for expressing new ideas and points of view, and contribute to the special operations community as a whole.

JSOU is pleased to offer this selection of essays from the 2010 contest. The JSOU intent is that this compendium will benefit the reader professionally and encourage future PME students to enter the contest. Feedback is welcome, and your suggestions will be incorporated into future JSOU reports.

Kenneth H. Poole
Director, JSOU Strategic Studies Department
Enhancing Civil Affairs Assessments with Social Network Analysis

Chad Machiela

While Social Network Analysis (SNA) has been used extensively for optimizing organizational structures within corporations, and more recently for targeting dark networks of terrorists or insurgents, SNA also offers an effective means to enhance Civil Affairs assessments to assist at-risk communities more effectively and with greater credibility and to better disseminate sociocultural information to other U.S. and host-nation forces.

Even when planned and conducted with the best of intentions, U.S. security and humanitarian assistance efforts often conflict with deeply held cultural values and are resisted by the very communities they were meant to assist. Too often development projects provide little value to the community or are accomplished only at great cost. Even more importantly, because aid officials too often lack understanding of the granular level of the communities they are attempting to assist, U.S. resources are expended supporting individuals recognized by other community members as illegitimate or even criminal. Gutelius reported that residents of Mali’s capital city of Bamako have long expressed their frustration in watching international assistance dollars siphoned off by the elites of the Bambara-dominated government, which leaves the population susceptible to the influence of Islamist nongovernmental organizations (NGOs) and religious organizations who also offer assistance.¹

Chief Warrant Officer 3 Chad Machiela is a U.S. Army Special Forces warrant officer. He submitted this paper while attending the Naval Postgraduate School (Monterey, California), where he earned a M.S. in Defense Analysis (Irregular Warfare). He is currently assigned to the 1st Special Forces Group (Airborne), Fort Lewis, Washington.
The U.S. Army’s Civil Affairs (CA) specialists have consistently proven to be a powerful tool for assisting civilian populations and opening access to key communities. However, these specialists are regionally oriented and employed in the same way that Special Forces Groups are regionally oriented. The high operational tempo of these units ensures that operators spend the majority of their time working outside their nominal areas of geographic orientation. Therefore, even when applying methods that have proven successful in the past, “techniques that have worked in one community may fail when applied in another not because they were inapplicable but because what was really involved was not understood.”

Too many times U.S. officials define success of development projects based on the number of projects completed instead of how successfully each project has influenced the population. To achieve this real measure of success, CA specialists must understand the population well enough to not only design assistance projects that the community will take ownership of but also motivate the community to undertake them for themselves to change the way they live.

Social Network Analysis (SNA) offers commanders and analysts a method for studying not only the demographics of the communities they are attempting to assist but also the social topography of the community. SNA offers a means to graphically depict relationships between actors to better understand how community members organize, communicate, and mobilize. Additionally, SNA offers a format to allow commanders and analysts to pass on the hard-won conceptual understanding of these communities to follow-on forces or other U.S. officials.

**The Civil Affairs Assessment Format**

While Appendix A (Assessment Formats) of FM 3-05.401 Civil Affairs Tactics, Techniques, and Procedures does offer a format for collection of sociocultural information, the value of the product developed is limited to how well the operator can translate bullet comments such as “Humor, entertainment” and “Individuality” into prose that will allow the operator to pass his conceptual framework for understanding a target community to a reader who may have never worked in the area. Paragraph C.5 includes a checklist for biographical sketches of key officials and other influential persons, but has no field for
recording why those individuals are key or influential or for quantifying their value. When considering civil-military aspects of planning for stability or reconstruction operations, the fact that a particular individual owns a transportation company with several trucks could be important for a number of contingencies, as could the location of those trucks.

Figure 1 depicts example information taken from biographical sketches of the key officials and influential persons identified during a CA assessment of a small village in northern Thailand called Mae Sariang. (In the interest of privacy, the names and locations depicted in these maps and sociograms demonstrate capability rather than any actual actors or businesses.) In this example, instead of trying to convey the social structure of the target community by offering a stack of biographical sketches, the analyst has imported the fields from the CA assessment into a shapefile for depiction using ArcGIS, a program for displaying and analyzing geospatial data. The commander can then see at a glance where key individuals are located throughout the community and adjust his plans accordingly.

What neither the assessment format nor this geospatial depiction of format data offer is a means to capture, depict, or assist in the understanding of how individuals identified relate to one another. As described by Anna Simons, these ties and relationships form the very basis of how actors in the

Figure 1. Example Network of Social Entrepreneurs in Mae Sariang, Thailand
non-western world recruit for and support their networks and organizations while also offering cover for their activities.

**Social Topography of Communities**

Mapping the social topography of the community begins with identifying the primary actors and their roles, be they politicians, community leaders, criminals, or social entrepreneurs. Often an actor may have several of these roles at once. Understanding the community begins with identifying the relationships between actors. CA specialists operate in small teams and generally in resource-constrained environments. Therefore, identifying those members of the community with the social capital to most effectively assist the CA specialists in project development may be crucial to success. Even the small network of 20 individuals shown here is too many for a small team to efficiently leverage themselves. Analysis measures such as degree centrality, betweenness centrality, and Eigenvector centrality can assist CA specialists in identifying and empowering those community members most capable of leveraging others in support of development and assistance projects.

Degree centrality is a simple measure of how many ties a particular actor has within a network. An actor’s degree centrality score can be compared to the scores of other network actors, from which the analyst can determine which actors are the most central within the network. Betweenness centrality is measured under the assumption that a particular actor has power over other actors within the network whenever that actor is located between other actors on the shortest path. An example of this relationship is a local new car dealer. While the factory wants to sell a particular car and a customer wants to buy that car, neither can escape the influence of the car dealer who sits in the middle. Eigenvector centrality assumes that ties to central actors are more important than ties to the periphery and weights those ties accordingly. These are only a few of the multiple analysis measures possible with SNA, but an example provided here demonstrates how even these few can be employed by the CA specialist to rapidly identify and depict key community members. There are several inexpensive or free software packages available to assist in SNA, and most are compatible with one another.

**Community Networks**

In the example below the CA specialists have added questions to their CA assessment format—for example, asking community members identified
as key and influential which other actors are considered friends and which members do they conduct business with. Figures 2 and 3 depict two sociograms (graphical depictions of actors within networks) showing first the social ties between the 20 key personnel depicted geospatially earlier, then
by their business ties. While diagrams produced during link analysis depict actors spaced however they may be most easily viewed, SNA sociograms depict actors in two-dimensional space based upon each actor’s similarity or dissimilarity to one another. The number and strength of the various ties under consideration determine this similarity or dissimilarity.

Instead of poring over files of biographical sketches in an attempt to determine the social topography of this community, the analyst can use these sociograms to rapidly visualize the community networks. In Figure 2 the analyst can easily see that Dang, Din, San, Sanit, and Ten are all central to this community, each with several social ties to each other and the rest of the community. Figure 3 depicts the business ties between these community members, and again Dang, Sanit, and Din are well connected.

Because of their high degree centrality, betweenness centrality, and Eigenvector centrality, Dang, Sanit, and Din all appear to be excellent candidates for use as primary community representatives. If the CA specialists were limited to these assessments, they would likely choose Dang, Sanit, or Din as their primary liaisons with the community and funnel their efforts through them. However, CA specialists have access to all-source intelligence products, and in this example they have learned that several community members, including Dang and Din, have been implicated in narcotrafficking,
depicted in Figure 4. Employing these actors in development or assistance would likely destroy the very credibility the CA specialists are trying to build.

Fortunately the analysts can simply remove Dang and his network of potential dealers, then redraw the social network of this village (as shown in Figure 5) using dashed and dotted lines to differentiate the social and business relationships of the network in a single sociogram.

Here analysts can see that San is probably a better choice to assist in the distribution of aid resources or leverage indigenous assets. San has both social and business ties to the largest portion of the community network, and by encouraging a relationship between San and perhaps Samong, the CA specialists can tie the entire village back into a potential working network without the loss of credibility that would have been incurred by empowering the narcotraffickers. As an important additional benefit, information detailed in SNA formats is easily passed to follow-on rotational forces, allowing units to familiarize themselves with community social topography and rapidly develop a conceptual framework for understanding the community instead of being forced to start fresh with each rotation.

The use of SNA discussed here is merely the most basic and superficial application. Far more detailed analysis of networks of thousands of actors
can be conducted using a variety of advanced measures, and identifying and recording additional ties will further enhance the analysis. The purpose of this essay was not to describe all the ways SNA could be employed in support of military operations or how SNA can support CA assessments. Rather, the intent was to introduce a methodology that commanders and analysts can employ to better understand the social topography of the communities they are attempting to influence throughout the spectrum of operations and to offer suggestions of how SNA can be used in support of one type of military operation. For more information about using SNA in support of military operations, see Dr. Sean Everton’s step-by-step manual, Tracking, Destabilizing, and Disrupting Dark Networks with Social Network Analysis.

Endnotes


