



# Analytic Teams, Social Networks, and Collaborative Behavior

---

*Richards J. Heuer, Jr., Consultant*  
*Randolph H. Pherson, Pherson Associates*  
*Sarah Miller Beebe, Pherson Associates*

*This article appeared in "Collaboration in the National Security Arena: Myths and Reality – What Science and Experience Can Contribute to its Success" in June 2009. The article is part of a collection that was published by the Topical Strategic Multilayer Assessment (SMA), Multi-Agency/Multi-Disciplinary White Papers in Support of Counter-Terrorism and Counter-WMD in the Office of Secretary of Defense/DDR&E/RTTO.*

---

## Introduction

Across most of the US Intelligence Community, analysis appears to be in a transitional stage from a mental activity done predominantly by a sole analyst to a collaborative team or group activity. The driving forces behind this transition are the growing complexity of international issues and consequent requirement for multidisciplinary input to most analytic products; the need to share more information more quickly across organizational boundaries; growing dispersion of expertise, especially as the boundaries between analysts, collectors, and operators become blurred; and the need to identify and evaluate the validity of alternative mental models. The transition is enabled by advances in technology such as Intellipedia, Communities of Interest, A-Space in the Intelligence Community, and the mushrooming growth of social networking practices among the upcoming generation of analysts. Many things change when the analytic thought process is externalized in a transparent manner so that it can be shared, built on, and easily critiqued by others.

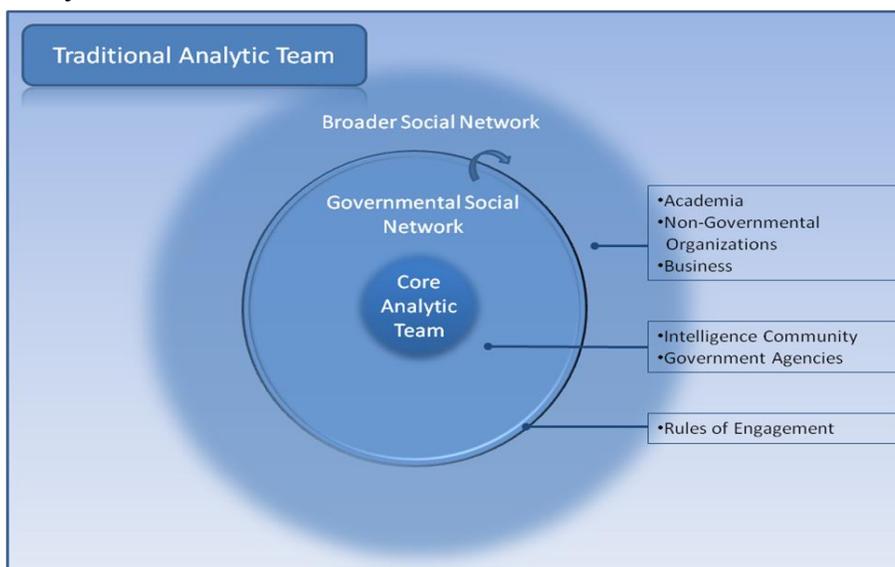
The transition to a more collaborative form of analytic activity presents many challenges, particularly when the analysis is being done by small groups. When discussing the US Intelligence Community, it seems most useful to deal with three types of groups or teams: the traditional Analytic Team, the Special Project Team, and Social Networks. The rapid growth of social networks across organizational boundaries and the consequent geographic distribution of their members is changing how analysis is being done. The authors propose that much analysis now should be done in two phases, a divergent analysis phase by a geographically distributed social network and a convergent analysis phase and final report done by a small analytic team. The ultimate challenge is to know how to take advantage of the collaborative environment while preventing or avoiding the many, well-known problems associated with small group processes.

## Analytic Teams and Social Networks

Analytic teams and groups can differ in the nature of their leadership, frequency of face-to-face interactions versus virtual meetings, the breadth of the analytic activity, and the amount of time pressure they work under.<sup>1</sup> Analytic Teams, supported by Social Networks, can operate effectively in both co-located and geographically distributed modes. The Special Project Team is most effective when its members are co-located.

*Analytic Team:* This is the typical work team assigned to perform a specific task. It has a leader appointed by a manager or chosen by the team (see Figure 1). All members of the team usually are collectively accountable for the team's product.

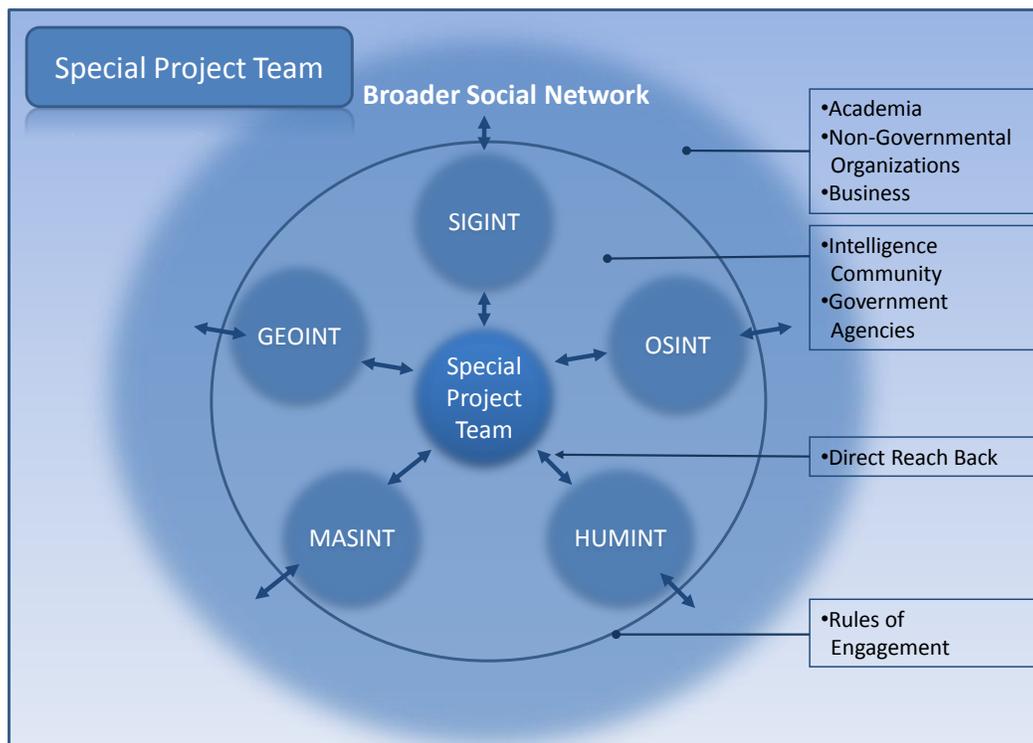
Figure 1. The Analytic Team



The analytic team may work jointly to develop the entire product or each team member may be responsible for a specific section of the work. Historically, many teams were composed of analysts from a single agency, and involvement of other agencies was through coordination during the latter part of the process rather than collaboration from the beginning. That is changing as a consequence of shifts in policy and easier access to interagency communications and collaboration software,

*Special Project Team:* Such a team is usually formed to provide real time analytic support to decisionmakers during a crisis or ongoing operation (see Figure 2). A crisis support task force or field-deployed interagency intelligence team that supports a military operation exemplifies this type of team. Members are either located in the same physical office space or are connected by video communications. There is strong team leadership, often with close personal interaction, between team members. Because the team is created to deal with a specific situation, its work has a narrower focus than a social network or regular analytic team and its duration is limited. There is usually intense time pressure and around-the-clock operation may be required.

Figure 2. The Special Project Team



**Social Networks:** Experienced analysts have always had their own network of experts in their field or related fields with whom they consult from time to time and whom they may recruit to work with them on a specific analytic project. Social networks are the guts of the analytic business. They do the day-to-day monitoring of events, produce routine products as needed, and may recommend the formation of a more formal analytic team to handle a specific project. The social network is the form of group activity that is now changing dramatically with the growing ease of cross-agency secure communications and the availability of social networking software. Social networks are expanding exponentially across organization boundaries. The term social network as used here includes all analysts working on a particular country, such as Brazil, or on an issue, such as the development of chemical weapons, anywhere in the world. It can be limited to a small group with special clearances or comprise a broad array of government, non-government, and academic experts.

### Challenges Faced by Geographically Distributed Teams

The key problem that arises with social networks is the geographic distribution of its members. Even within the Washington, DC metropolitan area, distance is a factor that limits the frequency of face-to-face meetings. Based on their study of teams in diverse

---

organizations that included teams in the Intelligence Community, Richard Hackman and Anita Woolley concluded as follows: “Distributed teams do relatively well on innovation tasks for which ideas and solutions need to be generated, for example, but generally underperform face-to-face teams on decision-making tasks. Although decision support systems can improve performance slightly, decisions made from afar still tend to take more time, involve less exchange of information, make error detection and correction more difficult, and can result in less participant satisfaction with the outcome than is the case for face-to-face teams. In sum, distributed teams are appropriate for many, but not all, team tasks. Using them well requires careful attention to team structure, a face-to-face launch when members initially come together, and leadership support throughout the life of the team to keep members engaged and aligned with collective purposes.”<sup>ii</sup>

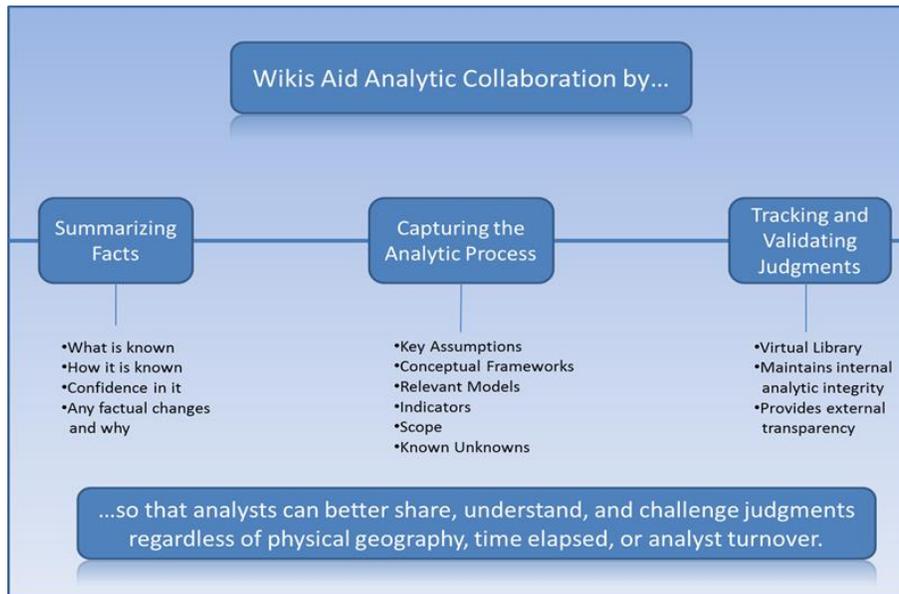
Research on effective collaborative practices has shown that geographically distributed teams are most likely to succeed when they satisfy six key imperatives. Participants must:

- Know and trust each other; this usually requires that they meet face-to-face at least once.
- Feel a personal need to engage the group in order to perform a critical task.
- Derive mutual benefits from working together.
- Connect with each other virtually on demand and easily add new members.
- Perceive incentives for participating in the group, such as saving time or increasing the impact of their contribution.
- Share a common understanding of the problem with agreed lists of common terms and definitions.<sup>iii</sup>

### **Using Wikis to Overcome These Challenges**

Managing the geographic distribution of the social network can be addressed effectively by dividing the analytic task into two parts – first, exploiting the strengths of the social network for divergent or creative analysis to identify ideas and gather information, and, second, forming a small analytic team that employs convergent analysis to meld these ideas into an analytic product. When the draft is completed, it goes back for review to all members of the social network who contributed during the first phase of the analysis, and then back to the team to edit and produce the final product.

Figure 3. Wikis as Collaboration Enablers



Structured analytic techniques and collaborative software work very well with this two-part approach to analysis. A series of basic techniques used for divergent analysis early in the analytic process works well for a geographically distributed social convergent analysis by a small analytic team. In other words, each type of group performs the type of task for which it is best qualified. This process is applicable to most analytic projects, and it can work as follows:

A project leader informs a social network of an impending project, provides a tentative project description, target audience, scope, and process to be followed. The leader also gives the name of the wiki to be used and invites interested analysts knowledgeable in that area to participate. Any analyst with access to the secure network also has access to the wiki and is authorized to add information and ideas to it. During the divergent phase of analysis, the project leader can engage the team in a variety of activities designed to:

- Better define the issue.
- Brainstorm lists of driving forces, variables, or players.
- Rank or prioritize these lists.
- Assess the relationship, if any, between various pairs of driving forces, variables, or players associated with the topic.
- List alternative explanations or outcomes (hypotheses) to be considered.
- Develop evidence to be considered when evaluating these hypotheses.
- Review the key assumptions that underlie the analysis. This will be less effective when done on a wiki than in a face-to-face meeting, but it would be beneficial to know the network's thinking about key assumptions.

---

Most of these steps involve making lists, which can be done quite effectively with a wiki. Making such input via a wiki can be even more productive than a face-to-face meeting, because analysts have more time to think about and generate their input. Moreover, they can take several days to consider their contribution and make additions or changes as new ideas come to them.

The process usually is overseen and guided by a project leader. In addition to providing a sound foundation for further analysis, the process gives the project leader time to seek out analysts with alternative perspectives or with a unique knowledge base or conscientious work ethic that qualifies them for membership in the analytic team that conducts the second phase of the project – making analytic judgments and drafting the report. The project manager should select team members to represent maximum subject expertise, the diversity of opinions and thinking styles, and various stakeholders in the analysis.

The action then moves from the social network to a small, trusted team (preferably no larger than eight analysts) to complete the analysis. Face-to-face meetings should be held as needed. Software used for exchanging ideas and revising text should use a system like Microsoft SharePoint rather than a wiki, as a SharePoint-type system allows for privacy of deliberations, which the wiki does not. The draft report is best done by a single person. That person can work from other team members' inputs, but the report usually reads better if it is crafted in one voice. As noted earlier, the working draft should be reviewed by those members of the social network who participated in the first phase of the analysis.

## Conclusion

The benefits of using a wiki or other collaborative software are numerous. An obvious benefit is that it allows the social network and small analytic team to better track the underpinnings of their analysis, such as indicators, brainstorming results, and key assumptions. When used in this manner, a wiki can also facilitate an otherwise cumbersome review and coordination process by allowing analysts to refer to the wiki for information on the analytic processes that were used to arrive at the analytic judgments. Furthermore, after the project is completed, analysts can employ the wiki to help test their analytic framework and judgments as new information or ideas become available. The most compelling benefit of all, however, may be that wiki-enabled analysis helps build a more transparent and collaborative analytic environment.

---

<sup>i</sup> This essay was inspired by and draws on the research done by The Group Brain Project at Harvard University. This project was supported by the National Science Foundation and the CIA Intelligence Technology Innovation Center. See in particular J. Richard Hackman & Anita W. Woolley, "Creating and Leading Analytic Teams" (Technical Report No. 5, February 2007), available at <http://groupbrain.wjh.harvard.edu/publications.html>.

<sup>ii</sup> Ibid p.8

<sup>iii</sup> These imperatives are discussed in more detail in the accompanying article: "The Essence of Collaboration: The IC Experience," by Randolph H. Pherson and Joan F. McIntyre.