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April 25, 2023

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Cultivating Communities of Practice To Support Analytic Collaboration

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Informal communities of practice (CoPs) already help analysts collaborate across the IC, and their expertise is often levied against threats that do not fit neatly into existing organizations. CoPs are typically formed organically by analysts, and while they may briefly thrive independently, these groups face long-term challenges including the lack of resources, visibility, and authority. A CoP may collapse when a key individual leaves, or the U.S. national security enterprise may create an entirely new CoP that can disrupt, displace, or dilute the existing information-sharing patterns. We invite your ideas on strengthening CoPs and their contributions: *Can the IC, perhaps using senior facilitators or other stewards, address these challenges by providing the support and advocacy needed to sustain grassroots CoPs?*

Grassroots Communities Enable the IC To Thrive - Yet Are Often Shunned

In the U.S. Intelligence Community (IC) and other U.S. Government entities—to include the Department of Defense (DoD)—collaboration is essential to understand and address national security challenges. When collaboration falters, the U.S. Government may implement measures to overcome identified challenges, as it did in creating the Office of the Director of Intelligence (ODNI) to curb institutional silos.[1] Despite these mechanisms, collaboration shortfalls persist, particularly when resources are shifted to address new priorities. Such movement can hinder cross-organizational awareness of counterparts working on similar or complementary national security issues. Occasionally, however, communities of practice (CoPs) emerge voluntarily at the grassroots level (GCoPs) to leverage expertise that otherwise may not be easily identifiable. These GCoPs serve as "desired paths" that can become routine components of governmentwide collaboration and information sharing.

A GCoP can be a highly effective information-sharing resource for several reasons. First, it creates a forum that connects working-level counterparts across the national security community focused on a specific topic. Second, a GCoP may not have a specific organizational affiliation, affording greater flexibility and agility. Third, a GCoP encourages participation across diverse communities regardless of paygrade or rank, providing more opportunities to learn, engage, and collaborate. Finally, and perhaps the most undervalued aspect of these groups, once a GCoP is formed and fully functional, it can be immediately leveraged to support an emerging crisis and potentially respond to tasking.

> ## 🔍 KEY RESEARCH INSIGHTS
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> - Communities of Practice (CoPs)—frequently formed by working-level counterparts across organizations to make progress on specific issues—have proven to be effective in both the public and private sectors.
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> - CoPs can strengthen analysis by connecting experts across the IC.
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> - Formal support from IC leadership, perhaps through a senior facilitator, could empower CoPs to achieve breakthroughs in tackling the emerging threats to U.S. national security.

Based on their review of the academic literature throughout the past 30 years on CoPs, the authors have determined that these groups provide:

- Rapid identification of experts and touch points across stovepipes;

- Encouragement of peer interactions, new relationships, and acceptance;

- Ease of mentoring and "apprenticing";

- Continuity of expertise and knowledge between periods of transitioning resources;

- Flexibility to address high priority, critical topics; and

- Vision and stimulus for the innovation required to counter adversaries.

Yet the literature also shows that, without sustained senior-level support, CoPs may have limited effectiveness or even collapse. Efforts by employees of the Federal Energy Management Program and their colleagues from other U.S. Government departments to sustain

a CoP—designed to increase operational productivity at shared Federal facilities—were blocked by restrictions on the comingling of different agencies' funds.[2]

DESIRED PATHS PRINCIPLE:
A Metaphor for Communities of Practice

The "desired paths" principle, cited in urban planning, can be seen when pedestrians find the shortest path between key locations, often shunning sidewalks and streets. Over time, this pedestrian traffic creates markings or lines in the dirt that reveal these pathways. When this method is employed, the walkways may be cemented, codifying the wisdom of the pedestrian crowd. "However, desired paths are not inert histories, but representative of a constantly evolving relationship."[3]

Image of a pedestrian-created pathway by Alan Stanton, Tottenham Green, London, UK, April 14, 2012. Photo courtesy of Flickr, https://www.flickr.com/photos/alanstanton/7094286453/in/pool-desire_paths/, under Creative Commons license, https://creativecommons.org/licenses/by-sa/2.0/.

Background and Benefits of CoPs

CoP pioneers Lave and Wenger popularized the term in the late 1980s, introducing the concept in their landmark book, *Situated Learning: Legitimate Peripheral Participation.* [4] They envisioned a CoP as a mechanism to collectively address problems, deepen expertise, and share concerns and knowledge. CoPs display significant variations in terms of size, form, and composition. The basic structural components of a CoP often discussed in the literature include population, duration, intent, and means of interaction.[5] CoP membership can comprise a few experts to hundreds, working within a single organization or across multiple entities. Duration is dependent on the topic and the willingness of organizations to contribute members to the CoP and, therefore, can range from a few months to decades. Intent refers to the process whereby experts gravitate to one another to share ideas and best practices, typically with the goal of either supporting a longstanding issue or an emerging challenge within a larger organizational or community context. With dispersed CoPs now the norm, virtual interaction is typically the primary means of interaction, with in-person meetings being secondary but just as critical.

Considering large enterprises similar to the IC, Wenger and Snyder (2000) described several cases where the CoP model was adopted—with measurable performance improvements—in a wide range of organizations, including an international bank (World Bank), a U.S. car manufacturer (Chrysler), and a U.S. Government agency (Veterans Administration).[6] Implementation of the CoP model has been inconsistent across the U.S. Government, yet prevalent in spots— from usage in individual agencies to the "digital.gov" program that connects Federal employees in CoPs outside the IC primarily using an online mechanism to facilitate interaction.

The literature consistently shows that immediate and sustainable benefits emerge from the implementation of the CoP model within an agency or enterprise of agencies. Empirical research by Chindgren-Wagner (2010) showed that CoPs within the U.S. Government create

an atmosphere of connectivity and knowledge sharing conducive to innovation, a critical component of achieving new discoveries.[7] Further exploration in the Federal government realm was conducted by Reed (2014), who outlined the Department of Energy's adoption of CoPs in the Federal Energy Management Program.[8] The findings from Reed's study validated Chindgren-Wagner's and Wenger's prior studies, even showing that CoPs were indeed the leading elements in achieving breakthroughs and critical organizational changes.

Why Even Successful Grassroots Communities Often Fail

Despite their value, GCoPs often face challenges with respect to resources, visibility, and authority. First, these groups often depend on a small core of people—or sometimes one person—to administer and organize them. These individuals, although often highly dedicated, frequently rotate to new positions without the guarantee that any organization or agency will replace them. Because of the group's informal status, GCoPs often lack billets and funding, as noted by Wenger and Snyder (2000).[9] Therefore, a replacement core member, even if one is identified or volunteers, may not have the same bandwidth or background necessary to maintain the GCoP's activities.

Second, as a GCoP—or even a formally directed CoP—emerges to tackle a new IC challenge, crisis, or priority (e.g., the Islamic State, the Russia-Ukraine war, or climate change), its members may be unaware of the existing grassroots efforts. Not realizing that other engagement mechanisms already exist (which could enable the newer entities to focus their efforts and tap useful resources more efficiently) risks duplication of effort, reduced community visibility about activities, and saturation that could dilute their collective impact.

Resources: the personnel, time, and budget to execute the work.

Visibility: the access to and ability to influence or inform the highest levels of government and other institutions.

Authority: the ability to make decisions or direct activities concerning the topic.

Third, IC GCoPs primarily exist at the working level and most often do not have the authority to engage with policymakers. Rather, their activities and collaboration forums provide information and connectivity that *support* the offices with such authority. Even if GCoP activities inform policymaking, any input must be vetted by agencies or other formal organizations. The absence of this authority is arguably a reason why GCoPs are poorly resourced or face duplication of effort. Authority requires more responsibility to generate and measure impact. Even if a GCoP's members do not seek authority because of the increased responsibility it would entail, greater policymaker awareness of the GCoP's added value could improve the chances of personnel support by the GCoP members' home agencies.

How Can the IC Embrace Grassroots Communities?

Despite the challenges associated with starting and operating GCoPs, intelligence and national security professionals will continue to form them as "desired paths;" however, there is rarely a

visible means for GCoPs to gain resources, visibility, or authority as appropriate. Cox (2005) explored the idea that management should "foster" CoPs to empower them.[10] In assessing feedback on a virtual CoP study that included online participation by academics from six different countries, Guldberg and Mackness (2009) also suggested the benefits of an enabling authority to support a CoP's (or GCoP's) endeavors. Although 92 percent of the participants felt positive about their CoP experience and 76 percent believed their opinions were heard, despite cultural and language barriers, some participants viewed the group as too fragmented, with no one facilitating the group's direction.[11]

Could the IC provide a facilitator—or experts champion of sorts—to better leverage the expertise of existing GCoPs and encourage the formation of new groups to address emerging issues? These facilitators could reside in government departments, agencies, or organizations responsible for coordinating activities among individual agencies (i.e., how the ODNI oversees IC coordination), and they would be responsible for identifying and providing resources, visibility, and authority to support new and existing GCoPs in their respective communities. As noted in Reed (2014), the inability to comingle various energy funds impeded an effort by the Federal Energy Management Program to form a CoP in the 1990s—before the ODNI existed.[12]

Should support for these cross-agency GCoPs in the IC reside with the DNI? As such CoPs tend to transcend IC organizations, the ODNI could be an effective place to house an IC CoP facilitator, especially as the ODNI frequently also engages outside the IC to integrate expertise from other U.S. Government agencies and departments. An IC CoP facilitator could organizationally reside, for example, under the Deputy Director of National Intelligence for Mission Integration (DDNI/MI).

A designated CoP facilitator would need to **identify** all existing CoPs (including grassroots efforts that exist within and across agencies). The facilitator would differentiate these groups to understand their design, role, mission, and contribution. CoP identification—particularly at the genesis of such a position—would help not only to understand what groups currently exist and which topics they are covering, but also to understand whether certain agencies and topics are underrepresented. The CoP facilitator could then create a reporting mechanism for identifying and tracking new groups. To assist the CoP facilitator in tracking these groups, the ODNI could produce a new Intelligence Community Directive on CoP creation and ask agencies to report new CoPs to the facilitator.

After identifying these groups, the CoP facilitator could then **create** opportunities for establishing new CoPs and **recruit** agencies and experts within those agencies to lead them. The CoP facilitator would not force agencies or individuals to create CoPs but would be able to establish communication and collaboration mechanisms to at least enable the basic elements of coordination.

Other key elements of the CoP facilitator's role could be **marketing** and **supporting** the CoPs under IC purview. Whenever these CoPs require access to administrative support or services, the CoP facilitator would be the one primarily responsible for working to meet those administrative

needs and to serve as the institutional champion for these groups. Ideally, the CoP facilitator would have a staff to support this function, field requests, and liaise with the various CoPs.

Should a Central Authority Reinforce "Desired Paths"?

Grassroots CoPs represent fast-moving, evolving, and flexible opportunities to capture comprehensive input and diverse perspectives, preserve and grow knowledge, and leverage cross-community information to support analysis and decisionmaking. These informal groups often lack resources, visibility, and authority, and suffer from high turnover as analysts move to new positions, taking their knowledge with them and risking network collapse.

Promoting IC GCoPs with a centralized facilitator and investing comparatively small amounts of resources could enable stronger, more cohesive analytic networks that can effectively respond to needs and challenges posed by increasingly nimble and dangerous adversaries and complex actor-less threats. An argument has been made for the formal support of these collaborative workgroups, but several questions remain—chief among them being: What level of oversight by an IC CoP facilitator would promote a collectively stronger IC analytic capability without damaging the inherent qualities of organically grown, self-governing GCoPs?

- How might the experts-led direction setting found in GCoPs be sustained, even as their grassroots governing structure needs adjustment to ensure funding, accountability for results, and tasking authority?

- As attrition and individual agency requirements move GCoP members to new positions, how might an IC facilitator coordinate continued access to—or replacement of—their expertise?

- What level of authority should an IC CoPs facilitator exercise to create or sunset IC CoPs in response to evolving national security concerns? One could argue that, although a CoP might lose energy and support as its issue's priority wanes, a minimal level of group expertise and collaboration should be maintained as IC priorities tend to be cyclical.

In what other ways could IC GCoPs be supported?

- Are there options to support groups at the agency or office level that could enable these "desired paths" to connect and grow? Environmental security groups across the IC recently banded together under a consortium to gain more recognition; would this work for other GCoPs?

- How might local-level facilitators, perhaps in coordination with an IC CoPs experts champion, help preserve institutional memory?

- If the ODNI is the most appropriate facilitator within the IC, which DoD entity might serve a similar support role across the defense community and coordinate IC-DoD collaborative efforts?

What Might You Propose?

The IC is facing an evolving, dynamic threat environment where our adversaries are becoming increasingly agile and adept—for example, in the cyber realm as seen in the growing spread of disinformation, deep fakes, election meddling, and ransomware attacks. Individual experts and grassroots communities across the IC could be better connected through communities of practice to leverage their knowledge and promote the innovative thinking required to counter these challenges to U.S. national security.

But barriers to much-needed IC collaboration still exist. What can we do to help break down those barriers?

We invite your responses to the questions above and welcome your thoughts on how the IC can leverage Communities of Practice across organizations and topics. We also welcome your examples of contributions made by CoPs and GCoPs to U.S. Government operations or policy advancement. To share your ideas, please contact the NIU Office of Research at **Research@niu.odni.gov**.

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If you have comments, questions, or a suggestion for a *Research Short* topic or article, please contact the NIU Office of Research at **Research@niu.odni.gov**.

Endnotes

1   National Commission on Terrorist Attacks Upon the United States, "How To Do It? A Different Way of Organizing the Government," *The 9/11 Commission Report* (Washington, DC: U.S. Government Printing Office, 2004), 399-428, https://www.govinfo.gov/features/911-commission-report.

2   U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, *Communities of Practice: A Tool for Creating Institutional Change in Support of the Mission of the Federal Energy Management Program*, by John H. Reed, November 2014, https://www.energy.gov/eere/femp/articles/communities-practice-tool-creating-institutional-change-support-mission-federal.

3   Parker Schorr, "Desire Paths: The Unofficial Footpaths that Frustrate, Captivate Campus Planners," *University of Wisconsin-Madison News*, April 24, 2019, https://news.wisc.edu/desire-paths-the-unofficial-footpaths-that-frustrate-captivate-campus-planners/.

4   Jean Lave and Etienne Wenger, *Situated Learning: Legitimate Peripheral Participation* (Cambridge, UK: Cambridge University Press, 1991).

5   Steven J. Kerno, Jr., "Limitations of Communities of Practice: A Consideration of Unresolved Issues and Difficulties in the Approach," *Journal of Leadership & Organizational Studies* 15, no. 1 (August 2008), https://journals.sagepub.com/doi/abs/10.1177/1548051808317998.

6   Etienne C. Wenger and William M. Snyder, "Communities of Practice: The Organizational Frontier," *Harvard Business Review*, January-February 2000, 139-45, https://hbr.org/2000/01/communities-of-practice-the-organizational-frontier.

7   Tina M. Chindgren-Wagner, "Climate of Innovation in Government Communities of Practice: Focusing on Knowledge Gains and Relationships," paper presented at Project Management Institute Research Conference *Defining the Future of Project Management*, Washington, DC, July 14, 2010, https://www.pmi.org/learning/library/community-practice-knowledge-management-gains-6461.

8   U.S. Department of Energy, *Communities of Practice*.

9   Wenger and Snyder, "Communities of Practice."

10 Andrew Cox, "What Are Communities of Practice? A Critical Review of Four Seminal Works," *Journal of Information Science* 31, no. 6 (July 2016), https://journals.sagepub.com/doi/10.1177/0165551505057016.

11 Karen Guldberg and J. Mackness, "Foundations of Communities of Practice: Enablers and Barriers to Participation," *Journal of Computer-Assisted Learning* 25, no 6 (November 5, 2009), https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2729.2009.00327.x.

12 U.S. Department of Energy, *Communities of Practice.*