A DIA Knowledge Laboratory Project

How A-Space is Shaping Analysts' Work

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Executive Summary

This report provides an overview of an exploratory scientific, qualitative study conducted by the Defense Intelligence Agency's (DIA) Knowledge Laboratory in April-June of 2009. The ethnographic study based on twenty in-depth interviews with analysts identifies how analysts are using A-Space and what impact that use is having on their analytic work within DIA's Directorate for Analysis (DI).

The primary benefit that A-Space brings to analytic work is a venue for seamlessly incorporating cognitive diversity to address complex analytic issues. Research[1] indicates that cognitive diversity, (e.g. different perspectives, interpretations, heuristics, and predictive models) when applied to complex problems, consistently results in more and better solutions.

- <u>A-Space is an environment in which analysts collaboratively create new meaning out of the diverse ideas and perspectives they collectively bring to an issue. Through this collaboration, analysts have the potential to break through long held assumptions to provide new ways of thinking about complex problems.</u>

  Analysts talk about A-Space as a setting where they are able to test out ideas and theories. Analysts, faced with a stream of data from a multitude of sources have the task of finding patterns in that data that will be useful to decision makers. Sensemaking is the term used for that human ability to make meaning out of a stream of seemingly unrelated information. It requires creating hypotheses and testing them against the data and interpretations of others. And conversation, with analysts who have diverse perspectives, is the most effective means to engage in the testing and revision of hypotheses. The peer-to-peer environment of A-Space provides a *conversational format* to engage in joint sensemaking, <u>which may be the most significant function of A-Space in terms of being a human intellectual force multiplier.</u> As analysts experience the benefits of on-line sensemaking

conversations, over time, such conversations could become more prominent in the everyday discourse of analysts.

- <u>Networked relationships on A-Space provide a stream of cognitively diverse information without the costly time investment that maintaining strong ties requires</u>

    Networking is highly valued by analysts because it provides access to new ideas and diverse perspectives. However maintaining networked relationships is a time consuming activity. The time cost limits the number of relationships an analyst can invest in. The most productive network relationships for gaining unique or novel ideas are not the close relationships among an analyst's teammates (what sociologists call strong ties) because team/division members tend to have redundant knowledge. Rather the best source of new perspectives and ideas are colleagues in other directorates or agencies who have access to information from totally different sources or provide unique perspectives or interpretation of the existing data. But these more distant relationships (called weak ties) are the *most* costly to maintain because they require a planned interaction by phone/email/in-person. A-Space, however, *reduces the time-cost* of maintaining weak ties by providing analysts a way to establish and maintain relationships through frequent on-line interaction in an informal, peer-to-peer culture of mutual trust. A-Space also greatly increases the *number* of distant network members an analyst can interact with, again without increasing the time cost.

- <u>A-Space is reinforcing the value of asking questions of colleagues, providing analysts the means to uncover flaws in their own data and reasoning</u>

    When analysts ask a question on A-Space they are making a tacit acknowledgement that, even if considered the expert on their topic, other analysts have perspectives and data that can add to their line of reasoning or uncover faults in that reasoning. This willingness to be shown to be wrong – to overcome the natural tendency to only seek confirmation - is facilitated by a culture of openness that analysts themselves have developed on A-Space. Through the on-line interaction, counterparts within and between agencies are coming to know each other as valued colleagues. There is a growing sense of trust and a willingness both to help and to receive help from each other.

- <u>A-Space is providing analysts a set of new practices to: 1) build cross agency networks, 2) gain situational awareness, and 3) hold discussions of interpretation, that operate in parallel with the normal production process. These new practices constitute an emerging model that provides a level of cognitive diversity not previously available.</u>

    Analysts appear to be making use of A-Space for practices that were either not available or were very difficult to accomplish before A-Space was accessible – practices such as cross agency networking, situational awareness, discussions, and making available highly classified team products. However, practices like co-

authoring and coordinating products, which are part of the normal production process are only rarely conducted through A-Space, even though the functionality is available to do so. Thus two models, operating in parallel, appear to be emerging. The challenge for analysts will be to merge these two models over time - bringing greater cognitive diversity into the normal production process and moving co-authoring and coordination more fully into A-Space.

- <u>The non-hierarchal nature of A-Space, results in analysts feeling that it is okay to offer their thinking even if it is not completely formed or thought through, increasing the speed of product development by eliminating faulty hypotheses early on and quickly settling on those that are viable.</u>

  A-Space provides the means to test ideas and theories against knowledgeable others and to do so early in the formulation process. Early testing saves both time and effort that would have been spent on those ideas that do not measure up, and it lends support and expanded rationale for those that do. As valuable as offering thinking early on in the process is, it requires a safe environment in which to risk that thinking. A-Space provides such an environment by being peer-to-peer rather than hierarchal. Research indicates that peer-to-peer conversations are consistently more open and trusting than those that involve hierarchy[2]. Discussions on A-Space can be vigorous and critical without being judgmental in tone. The informality of the language and the friendly banter create the feel of a conversation among equals.

Introduction

Description of A-Space

A-Space is a collaborative environment, sponsored by the Office of the Director of National Intelligence (ODNI), under the Assistant Deputy Director for Intelligence for Analytic Transformation and Technology, as a tool for analysts to collaborate with each other on a web site with a classification level equal to Intelink but that supports additional security information compartments not available on Intellipedia and Blogs (social media tools developed by ODNI). A-Space was developed in answer to Presidential Directives responding to the 9/11 Commission, and the ODNI's National Intelligence Strategy, to "develop an environment in which analysts can share information and analytic insights and to collaborate and produce the best intelligence available to policy makers, warfighters and others responsible for protecting national security."[3]

A-Space is available to analysts across the Intelligence Community (IC). On it analysts can create workspaces dedicated to specific regional or functional issues they are interested in discussing with other analysts. Functionally, A-Space is similar to Facebook or MySpace on the Internet and like those social media tools does not require any knowledge of programming language or codes. Other analysts can view the discussions, ask questions and read the documents in the public workspaces - which constitute most of the workspaces, and if they join a private workspace, can also read and write in those workspaces as well. There are a number of tools on A-Space including the ability to create a poll, tag[4], and set alerts that arrive by email when a workspace has a new item. Analysts can also get email alerts each time a specific person has posted. Analysts who join A-Space construct a profile about themselves including their photograph or a picture of their choice. Their profile displays the workspaces the analyst has joined as well as a list of those who have become colleagues through an invitation of the analyst. At the time of this report there are over 10,000 analysts across the IC registered on A-Space. There are about 1,000 DIA registered users on A-Space.

A-Space differs from other social media developed by ODNI in several ways. The most important differences are:
- Registration requirements are such that only analysts (with a few exceptions) can participate in A-Space. Its intent is analyst-to-analyst interaction.
- A-Space has a high classification level that allows analyst to talk about issues and post documents too sensitive for Intellipedia, SharePoint, or Blogs.
- A-Space eliminates the need for special codes or programming language which are necessary for Intellipedia
- The design of A-Space facilitates threaded discussion, which neither Intellipedia, Sharepoint nor Blogs facilitate. The ODNI Mission Manager Communities of Interest (COIs) also facilitate threaded discussion.

Description of the Knowledge Lab Study

For this study twenty A-Space users within the DIA's DI were interviewed and observed. Interviews were conducted at the desk of each analyst while the analyst had A-Space open and could demonstrate the topics discussed. Each interview lasted approximately one hour. The A-Space Functional Requirements Team identified the interviewees for the study by selecting names of high, medium, and low users of A-Space. The categories were based largely on the points users had accumulated while on the site. Users interacting in a way that is beneficial to others, (e.g. posting a document, starting or responding to a discussion, creating a workspace) earn points on A-Space. Points are not assigned for actions that only benefit self, (e.g. reading or viewing, joining a workspace, or putting up one's own profile).

The demographics of the interviewees were 14 analysts, 3 Senior Intelligence Officers (SIOs) and 3 staff. Fourteen of the interviewees were male and 6 were female. Interviewees were drawn from 9 divisions across DI. Eleven of the interviewees worked with functional topics, 5 focused on regional topics, 1 on current topics and 3 were in staff roles.

This report is a snapshot in the life of A-Space, which is evolving and growing. We can anticipate that within six months there will be different workspace topics and the way analysts are using A-Space will be different as well. The language of this report frequently uses the terms, "some," "few," "many," and "almost all." That language reflects the lack of unanimity about subjects related to A-Space among the twenty analysts interviewed for this study. As one analyst put it, "We are still trying, as a community, to figure out what A-Space is good for." For this reason I have used the analysts' own voices to speak for themselves, however contradictory they may at times be. This lack of unanimity, however, also illustrates the tolerance for individuality and experimentation that is an important part of the A-Space culture - experimenting with new ways to use A-Space as well as experimenting with ideas and interpretation.

Findings

(1) The Benefits of A-Space for Analysts

Networking: A-Space makes it very easy to find others interested in the same topic. Analysts view this as the most valued aspect of A-Space. It is important for many of the reasons discussed in detail below, e.g. situational awareness, testing one's ideas with knowledgeable others, and being able to get questions answered.

> "You don't know the rest of the community until they post. Then you discover other people who are working on the same issue. That's the most helpful thing about A-Space, it tells you who is out there. It seems like a small community then you find out it's a large community that you can ask for help from."

> "It's a good mix of agencies. People work for groups I haven't even heard of."

> "The biggest thing is finding your counterparts."

The interaction with peers takes place almost entirely on-line. Analysts perceive little need to contact new additions to their growing network by phone or to arrange face-to-face meetings. On-line interaction seems not only satisfactory but highly valued. Through their interactions on A-Space, analysts develop a real sense of knowing others both within DIA and in other agencies. As one analyst noted, "I feel that I know them in an on-line way."

> "It's much easier to talk on A-Space. I don't have time for personal meetings. With A-Space there's a lot less walking around. I can ask seven people a question on A-Space, but it would take me an hour to walk around."

> "You always have less inhibition talking to new people on-line."

Building a networking is greatly facilitated by the functionality of A-Space. For example, profiles are of great benefit in getting a sense of who others are. Nearly every interviewee said that as they read what another analyst had posted (e.g. a response to a question, a document, or an inquiry) they clicked on the profile of that person. Analysts check out profiles because they want to understand the perspective and context behind what is being said. An analyst can learn what directorate or agency the analyst who posted the comment works for from reading their profile. They also learn who that analyst has invited as colleagues which sometimes yields names the viewer wants to invite into his/her own network.

One of the most informative parts of an analyst's profile is the list of workspaces to which he/she has subscribed. Since these are added to the profile automatically, they are always up to date. As with colleague lists, viewing others' workspaces often leads to finding new workspaces of interest. All of this information is retrieved with just one keystroke. Through profiles, lists of workspaces, lists of colleagues, as well as the content

the analyst posted, analysts come to know others who then become available to them as a part of their network.

> "I look at profiles because I'm curious where they are coming from. I find out where he is, look a little at his background and what workspaces he is in. Then if I need anything I can go to him on that topic."

Profiles provide a way to make sense of and to evaluate the comments of others. This is especially critical in an on-line forum where the analyst cannot check with team members or SIOs to verify the credibility of those on-line.

> "That's a regular thing I do. I want to know who they work for. If they don't focus on your area you kind of take that into account – so I use it to judge accuracy."

Although others rely heavily on profiles to determine how to value what is posted, most users, once they have created their own profile, don't return to update it. Nor do users tend to explain or update the topics they are currently working on, which, given the extensive use of profiles, would facilitate networking. Profiles have a space allocated for updates, but this space has very little use on A-Space. The few updates that do appear tend to be cryptic rather than informative.

> "I want to know their expertise, where they are coming from. But a lot of them leave me wanting. The profile pages aren't complete enough."

> "Most people won't tell you what they're working on. There is a big disparity between how much different people have in their profiles."

Situational Awareness: A-Space makes it much more possible to be aware of what is happening related to an analyst's topic, and to be aware more quickly. That happens both through questions and answers posted on-line and through the documents posted.

> "A-Space is useful for getting information I would not normally see."

> "I've gotten comments from other agencies. I often get a reply that says if you are interested in that you might be interested in this."

> "It helps in situational awareness that you can't get through email."

This chance, almost random, access to bits of knowledge is important because it makes available to users "the information that they did not know that they did not know." Before the implementation of A-Space analysts primarily relied on feeds and email from other analysts they knew to gain situational awareness. A-Space provides access to other analysts they may *know about,* (e.g. analysts in other directorates or in other agencies) but do not know personally. Granovetter,[5] a Stanford University Professor credited with some of the most influential theories in modern sociology, talks about these more distant

relationships as "weak ties" as opposed to the strong ties analysts have with team/division members with whom they regularly work. On A-Space analysts gain the benefit of a stream of information without the costly time investment that maintaining strong ties requires. This limited time investment explains, at least in part, why analysts are satisfied with knowing others in an "on-line way."

Moreover, analysts with whom one has a weak tie through A-Space, are by definition, from a different agency or different discipline, and therefore have access to unique information that would not be known by one's team members. Granovetter's research, as well as the research of Burt[6] and other social scientists, validates that novel information is most likely to come from weak ties. Weak ties then, provide access to 1) novel or unique information and 2) a greater number of analysts with new information and perspectives for a very low interpersonal time investment.

As an example of the wide-ranging exchange between agencies, one workspace question initiated by a DIA analyst, garnered thirty-three responses from sixteen different organizations including such diverse sources as Treasury, Air Force, STRATCOM, and NSA, among the many others.

> "We are not a culture of sharing so when someone shares its like, "Wow, thanks. I can't believe a guy from that agency posted that. It's really good!"

Situational awareness is facilitated by an attitude on A-Space of helping others. For example, a number of analysts mentioned scanning the workspaces they subscribe to in order to see if there were new questions that they could answer. *Generalized reciprocity* a term from cultural anthropology, describes a system of sharing and giving that occurs when one person in a community shares goods or labor with another person without expecting anything in return. Generalized reciprocity is most often found among kinship groups, or within tribes or clans, but is increasingly common within communities that develop through social media. There is strong evidence for generalized reciprocity on A-Space.

> "We post products for others' situational awareness. People outside DIAC don't get the Defense Intelligence Digest so it's helpful for them."

> "I browse for my topic to see if the other spaces cross into my boundary to see if I can help out."

> "The ethic of A-Space is 'pay it forward.'[7] There is not a benefit to me posting right now. But you might be interested and not see it unless I post it."

> "It may be useful to others. It is so easy to put it up – it's five minutes to put up and tag."

A-Space Functionality That Encourages Situational Awareness: Several functions built into A-Space facilitate its fit for situational awareness.

1. As the last comment illustrates, A-Space removes the barrier of having to know programming language or markup codes. It is simple to post or respond.

2. Tagging,[4] another function of A-Space, also facilitates others finding posts of interest. The tag cloud on A-Space is made up of all the tags analysts have assigned to items. Using the tag cloud simplifies finding a specific topic as well as related topics.

3. On A-Space everyone can see how everyone else responded to a post. The ability to see all responses makes A-Space more useful for situational awareness than email. Email is a one-to-one medium, while A-Space is a many-to-many medium, which increases the potential of situational awareness exponentially.

    "The value of A-Space is to see everyone else's comments."

4. Discussions stay available on A-Space so that an analyst can read the discussions when they have the time, or locate a discussion item they read previously.

    "It is nice that it will be there so I can get back to it when I have time."

    "What is good is that there is now a standing record of the discussion."

    "Even if it was up 3 months ago someone new might come in and find it useful."

5. Finally the alert function of A-Space assists situational awareness. Alerts sent by email let an analyst know to go in and look at something recently posted that might be of interest. However, most analysts are selective in signing up for alerts, often choosing only 3-4 workspaces, otherwise they find their mailboxes over whelmed with update notices.

Asking Questions for Information and Interpretation: The lifeblood of A-Space is the questions and responses. The questions are primarily *content related* (e.g. What does this mean?) rather than *process related* (e.g. How do you do something.)   Photos in particular generate a lot of excitement (e.g. What is this? What do you think is happening here?) Frequently analysts post copies of feeds asking others questions of interpretation about them ("Could this be accurate?" "What do you think this means?").

    "People post a report to see if others can affirm or deny."

    "A-Space is primarily a place where people ask questions and get answers"

    Through email an analyst could certainly target an expert on a specific topic to get a question answered. However, A-Space has several advantages over email; 1) getting answers from experts that the question asker does not know, 2) receiving multiple

answers, 3) the multiplicity of perspectives those answers represent, 4) the speed of getting a response, 5) awareness on the part of the question asker that others will benefit from the answers.

"It has speeded the process along of getting people's questions answered."

"A-Space is more timely. I can put a question and get an answer in hours."

However, not all questions receive replies. As one analyst explained, "Sometimes I don't get any replies and sometimes I get 20."

Some analysts find A-Space is too slow to get questions answered and prefer to use IM.

"It is not timely enough if working on a product. IM is good for that. But A-Space is good for the broader questions, not something perishable."

Nor is there agreement on A-Space being the best place to post questions. For some analysts, who belong to an active COI, their preference is to post there. The COIs reside on Intelink which has a lower classification level, and is therefore more inclusive.

"We have the Mission Manager's site, a COI run by the [ODNI] Mission Managers office. If I post the question there I would get more informed answers. My POCs are not on A-Space. On the COI there is more name recognition."

"A-Space needs to be more inclusive, now it is purely for analysts- but not analysts in the field and not collectors who we need to include."

"There are too many spaces to go to in order to get information. A-Space is one more place to go. If people have invested time in one thing like a COI they are less likely to start up another."

Testing ideas: A-Space is a place where analysts feel comfortable checking out their own judgment about a theory or interpretation. Intelligence production is largely an activity that an individual analyst conducts independently so to have a site where it is possible to see how others are thinking, what they are working on, how others stack up against one's own thinking, is invaluable.

"It shows the topics others are working on. I can see if I'm on the same page. Maybe I have a thought and I put it out there to see if I'm in the ballpark."

"We test our theories out there."

Learning from peers is one of the most powerful sources for developing competence in any field, and A-Space affords analysts that opportunity. Through their responses on A-Space, peers teach each other about analytic tradecraft as well as new

ways to think about an issue. Others' reaction to a proposed idea serves to broaden an analyst's thinking and adds arguments he/she might not have considered. Others' reactions can also reveal faulty reasoning early in the formulation of a potential product.

"Thanks for keeping me honest."

"Responses tell me what topics others are looking at - what the top ones they find interesting are. If others are looking at something it indicates there is a good reason for it. Absence of comments tells me it's not on the right track."

Analysts use A-Space to determine if a specific topic is worth writing on or if someone is already working on it.

"I have made a query to find out if an idea would be interesting if I wrote on it. If there are few replies, I move on, so it's a kind test bed."

"A question can turn into a piece. If no one has a good sense of xxx that means policy makers don't have a good feel for it either.

"If I want to write on a topic I check has anyone already posted on it."

Testing ideas is a sense making activity, and ultimately it may prove to be the most significant function of A-Space in terms of being a human intellectual force multiplier. As former Deputy Director of National Intelligence for Analysis Fingar[8] noted in 2006, "We are awash in data." So additional items for situational awareness, as highly valued as they are, may be less important than collaboratively creating meaning out of the data that is available. Weick,[9] a noted organizational theorist, has said, "...the same event means different things to different people, and more information will not help them. What will help them is a setting where they can argue, using rich data pulled from a variety of media, to construct fresh frameworks of action-outcome linkages that include their multiple interpretations. The variety of data needed to pull off this difficult task are most available in variants of the face to face meeting." A-Space is a setting in which analysts 'construct fresh frameworks of action-outcome linkages.'

"I put out issues of concern as a discussion thread. You can immediately see an emergence developing. I liken it to "the source." Here is what I think the implications are, or context, or probability that something will happen."

"With A-Space you have already hashed out the stuff. The discussion helped everybody come to the same conclusion."

Posting Team Products: Teams/Divisions have felt the need for a place to post classified products that contain higher compartments than available on Intelink and within shared computer directories and A-Space has filled that need. As one analyst put it, "In the past there was not a central dump for products."

"We have needed a place to post classified documents."

"There was quite a bit of frustration about there not being a place to post our products. So this site serves that purpose and the classification level allowed us to talk in it."

Before A-Space many classified documents with higher compartments were located on analysts' own drives where they were largely inaccessible to others. A-Space has made them accessible. They are available not only for immediate use, but available after an analyst moves on to another position or job.

"It has opened people's personal shoebox."

One of the major reasons for posting documents on A-Space is to make them available to others across the IC. However posting team/division products also benefits the team.

"A lot of people had no understanding of our office. Once they read your documents they start working with you more and their awareness of what we do grows."

"People come in and out of our unit really quickly, so being able to find our products is a huge issue. This site serves that purpose."

Although others frequently *view* finished products and value having read them, finished products tend to generate little discussion, which is a disappointment to some teams. Analysts seem more interested in discussing the formulation of ideas than in critique or commenting on finished products. They may simply see no need to comment on what is completed, since it would not now be changed.

"One person put up a product and invited community comment. It was a finished product but he won't see anything back."

"We are doing an assessment and post the documents on this site – but there is very little discussion because this is a product. But if I didn't put it up on A-Space it wouldn't get read."

Frequently one person on the team is seen as the "A-Space person" and does most of the posting of products. This is not an assigned role, but appears to grow out of interest and comfort with social media.

"Others on my team have commented that, 'you're doing a good job' but have not posted anything themselves."

There are teams who use A-Space as a team space and post tradecraft and training briefs on the team site as well their products. However, often only a sub-set of a

team/division's members are active on A-Space. Therefore most teams/divisions still use another vehicle (e.g shared drive, email) through which the team/division conducts its business.

> "We have 100 people and not all are on A-Space so you would have to send an email anyway."

> "I haven't taken the initiative to make a workspace for the team, we have an arcane shared folder."

Co-authoring on A-Space: Co-authoring products on or through A-Space appeared to be a viable option to only a few of the analysts interviewed. Most felt A-Space was helpful as a place to test out ideas "a great test bed," but not a place to actually create a product.

> "I've not co-authored through A-Space but information from others has made my products better."

> "I don't know how it works – whose changes get made. I'm leery of that."

> "A-Space it is more helpful for formulation which is really hard to do by email."

The exceptions were very active A-Space users who were using A-Space in a way that other analysts seem not to have thought of.

> "I put up a discussion post that said, 'I want to write this product anyone interested?' and got back 4 responses. We identified points of co-authorship. The other authors pulled it down and inserted their parts. By email you are limited to people you know to co-author. I'm writing more joint products now with A-Space. Since we have our new evaluations I have produced 11 DIDs and 3 were co-authored with analysts from outside DIA. Before it would have been one and the co-authors would have been within DIA."

> "One product that stemmed from an A-Space collaboration started with a posting on an incident. A discussion formed around it. Jokes were in there too. We went back and forth talking about the initial report. Then the story changed a bit. Then I said, 'We have a good product here.' There were lots of authors but there was very little argument. With A-Space you have already hashed out the stuff. The discussion helped everybody come to the same conclusion. Now every time I write a product I have 2-3 new coauthors so it helps us do functional analysis. It helps us reach out and find people easier especially more from other agencies."

Coordinating Products on A-Space: Most of the analysts interviewed said they did not coordinate products through A-Space.

> "I tried using A-Space to coordinate products but I've had very little response. Now we do it through email."

> "One product was opened 156 times and I got 6 replies for coordination."

> "For a product that has a deadline, if I got it on Monday and it's due on Wednesday I send an email for coordination."

> "We have not put up a draft for coordination. We still do it through email because that's the way we've always done it."

Again there were a few exceptions.

> "I coordinated my last 6 products on A-Space. But don't get much back."

> "I prefer coordination through A-Space. If you use A-Space with 50 people you can see what each other sent."

There is an obvious drawback to coordination over A-Space, particularly if there is disagreement. To respond on A-Space in a critical manner would constitute being negative in public. As one analysts noted, in regard to the existing coordination process, "the expectation is they will provide minor comment. If there's a real problem they get on the telephone."

> "There is no anonymity in A-Space. If you call someone out everyone knows who you are. That serves as a disincentive to being cruel."

Even given that concern, the above comment, that "50 people can see what each other sent" would seem to provide greater support for either negative or positive views and the analyst, though the greater number of responses, might find a more reasoned position.

Considerations for Why Co-authoring and Coordination Occur Infrequently On A-Space: Analysts appear to primarily be making use of A-Space for tasks that were either not available or were very difficult to accomplish before A-Space was accessible – tasks such as cross agency networking, situational awareness, discussions, and posting team products. For example, A-Space provides a way to build a network of others from across the IC who are interested in the same topic area, but before A-Space it was difficult for analysts to even find out who in other agencies worked on their topic.

On the other hand, tasks for which a current process exists, such as co-authoring and coordinating products, seem to be much less frequently conducted on A-Space, even though the functionality is available to do so.

One possible explanation is that the activities that *are* taking place on A-Space are those that are user initiated, while the processes for coordinating and co-authoring originate with those at a level above analysts. Analysts may not feel free to alter the process.

"A-Space is not the place for formulating products because there is no oversight; people can make any comment they want. It is hard to judge the validity of what is posted. I would not want DIA products produced there to replace the regular database. You don't have to have the source to post in A-Space. The writing styles are different. The finished intelligence product needs to be defended to a senior analyst."

Another possible explanation is that it is always easier to take up a task for which there is no process, than to change an existing process that is at least working.

(2) The Culture of A-Space

There is a unique culture developing on A-Space, one that is collaborative, informal, non-hierarchical, and appreciative. In part that culture may be a function of the population who choose to be active on A-Space.   As one analyst put it, "People in A-Space are there because they want to collaborate." Another analyst said, "A-Space is a filter to find collaborative people in agencies that are not collaborative."

Informality: One of the appeals of A-Space is its informality. The casual language and repartee create the sense analysts have of engaging in a comfortable conversation between peers.

"There is a creative aspect. An out of the box culture, less formal, not judgmental."

There is an area on the A-Space profile page for analysts to upload a photograph of themselves. A few analysts have done so, but many find it difficult to bring photographs of themselves into a classified system so select a picture for their profile from an available bank of images. Analysts tend to choose pictures that relate in some way to their own topic – although it is not always clear how. Many pictures are jokes or have special meaning only to those who know the topic well enough to be in on the joke. The pictures, although not their photograph, come to represent them when displayed next to each of their posts. The pictures are a part of the informality that is valued on A-Space. Analysts say the "weird" pictures often make them curious enough to want to find out about the person it represents.

"I have a picture of a plane and an icon if anyone is savvy enough to figure it out"

"I know we can put our own picture up but it's cumbersome. The choice of pictures is a small piece of creativity."

"I would rather see an icon they thought was good than their photograph. All you can tell with faces is age and gender. But if they have a puppy dog they are a different personality than if they have a tank there. There is some Internet bonding that occurs."

"The picture people choose often tells you something about the person, for example if they have a picture of the Great Wall of China vs Borat. It's the internet culture bleeding over with the weird pictures."

Humor is another aspect of A-Space that adds to its informality. There are workspaces like *Take 5* that are dedicated to humorous stories about analysis as well as unrelated topics like *the three best books you've ever read*. A-Space status updates on the profile pages are also often humorous. They are formatted with the analyst's name followed by a space to fill in a recent event or activity.

"xxx is going down to Bragg to make sure I'm not loco."
"xxx finally over smallpox and now has Anthrax."
"xxx is thinking that his vacation was too short."
"xxx runs on dunkin."

There is a running controversy about whether humor has a place on A-Space. Many of the interviewees said they didn't take time to look at spaces like *Take 5*, but still thought there was nothing wrong with those sites being up. Some interviewees found them useful as a quick break from the tedium and a few felt that any type of "fun" was inappropriate on A-Space.

"If I'm having a bad day I'll go in there for a break."

"There are certain aspects that are inherently funny about our work, but you can't joke about them at home so A-Space is a place to talk about what's funny. But the vast proportion is serious business - maybe five per cent is fun."

"Some people go over the mark. It's eye candy. It's fine as long as you don't live in A-Space."

"I would like to see some policing – because some posts are not serious and have no intel value like *the best rock band name*."

Appreciative Responses: One of the unique aspects of the A-Space culture is the large number of replies that express appreciation for what others have posted. For example it is common to see replies such as,
"Nice post"
"This is great stuff thanks for posting"
"Glad I could help"
"You're a genius!"

For many analysts on A-Space helping each other and expressing gratitude is the way people *should be* working together. They view themselves as a part of a collaborative enterprise.

"It's doing what we should all be doing, working for the greater good."

"Especially for younger people who are comfortable in a peer group, if people take time out to post, it makes sense to express gratitude for their time. It's a relationship bank so you make a deposit and then can make a withdrawal."

It's professional courtesy to respond with appreciation if someone goes to the trouble of posting something. It's trying to be a good colleague.

Appreciative comments create a virtuous cycle[10]; if an analyst posts and receives accolades for doing so, he/she is encouraged to do it again, which supports and sustains collaborative behavior.

"I think it encourages people to put up more. If no one gets any feedback they will stop doing it."

"Your appreciation is a way of saying give me more of this good stuff and they produce. It keeps the flow going."

"It reinforces the sense of community - that we help each other."

Again the functionality of A-Space plays a role in the many expressions of appreciation that are noticeable on the site. Appreciative responses are rare on discussion boards where the reader has only the name of the commenter to relate to. Even email expressions of gratitude are infrequent, other than the ubiquitous, "thanks." In A-Space having a picture next to every response makes it obvious that a real person took their time to post. Through the pictures, as well as other profile attributes mentioned earlier, people become real to each other on A-Space.

The software also makes it very easy to make an appreciative comment through the reply function. An act, as one analyst noted, that is difficult to do on Intellipedia.

"A-Space is more friendly than the COI; you can see where that person is coming from. It supports the personal side through its functionality"

Non-hierarchal: In every field there are those who are seen as more experienced or wiser, "the greybeards" as some analysts call them. These are the people that the younger and less experienced analysts look up to and respect their opinions. A-Space environment makes "the greybeards" more accessible, removing the barriers, real or perceived.

"I would not send (name of an important person) an email – that would have felt too direct. But he would respond on A-Space."

"A-Space is non-threatening – ego is taken out of this so it's possible to communicate with people you would not normally have access to."

Directly emailing an important person can seem like a presumption, particularly if the analyst does not know him/her personally. Analysts make the assumption is that if important people are on A-Space it is because they are willing to respond.

"People in A-Space are there because they want to collaborate, while email is unsolicited."

"If I email someone I would worry about how they would react – but on A-Space there is not that worry because of the informality."

Due to the non-hierarchal nature of A-Space, there is a sense that it is okay to offer your thinking even if it is not completely formed or thought through. As described earlier, analysts feel comfortable using A-Space as a test bed for ideas. Less experienced analysts are equally willing to respond with their own ideas – knowing their ideas will be treated with respect.

Trust: Trust grows out of the feeling of generalized reciprocity on A-Space – a sense that we are all in this together so it is okay to ask for help because analysts know they will also be giving help to others. Trust also grows out of many statements of appreciation, which is an acknowledgement that one is respected by others – a central construct of trust. And it grows out of the sense of camaraderie that is inherent in a peer-to-peer conversation. Research indicates that peer-to-peer conversations are more open and trusting than those that involve hierarchy[2]. Although there are SIOs on A-Space, their presence does not seem to lessen the sense of talking peer-to-peer.

One illustration of that trust is the lack of concern about poaching (the concern that if an analyst posted partially completed documents, or worked with documents on-line, others would steal them to publish as their own) that the analysts expressed. All of the interviewees had heard stories of poaching and a few expressed this concern about A-Space. But most said it would not stop them from posting ideas or unfinished documents on A-Space. There was a sense that A-Space was a trust-worthy place.

"In A-Space I am less likely to be concerned about stealing stuff. If they are on A-Space you know they are willing to collaborate."

"I do have an underlying concern. I post drafts and I worry that someone else might see them, but it is not stopping me from doing it. I like to think there is a certain level of integrity. The reality is that people get scooped, not through intent but we all see the same traffic and start writing and some get it through the chain faster and what we were writing on doesn't get published."

"I've heard of people putting up things that are not final and others pulling them off and passing them around. But the benefit far out weigh the drawbacks."

The willingness to be open in spite of the nagging concerns about poaching in the minds of analysts is testament to the trust that has been established on A-Space.

(3) Patterns of Use

Joining A-Space: The most powerful impetus to join A-Space is the community building behavior of being invited by a colleague. Such an invitation serves as confirmation, from a respected peer, that A-Space would be useful. It is also taken as an indication that the peer highly values the ideas and thinking of the person they invite and would therefore want to read his/her ideas on A-Space.

> "Someone invited me to be a special friend, I went in and looked around and thought, 'Oh, wow!' I follow xxx and there is a group out there that set up a space on that topic."

> "Someone in a class I had attended emailed me, 'You have to get an account!"

> "You want people on A-Space whom you want to talk to; the more on, the more useful. It can become a really great space – has a lot of potential. It is just a hair's breath away from being amazing."

Many users registered because they were simply curious to see what all the buzz was about.

> "A lot of the new analysts, twenty something, were talking about it."

> "I just wanted to check it out"

Interestingly, almost all of those interviewed were Facebook users at home. As one interviewee said, "I like the name because it's familiar to my generation." These Facebook users did not need to take a workshop or study how to set up a workspace because of the similarity to Facebook.

> "I'm on Facebook everyday and the majority of the people in my division are also."

> "There was a weird sense when joining A-Space because Facebook is purely social and I didn't want that here. I don't want to be seen as wasting time. When I saw that it was more work related, then I got active."

> "I was on Facebook but got off for security reasons."

> "I'm comfortable with that kind of site. I don't find it difficult to use, but it is not as easy as Facebook."

Analysts reported that management encouragement to use A-Space was not a factor in their being active on A-Space. Analysts describe the reactions of those above them to A-Space, as falling into one of three categories.

1. Neutral

   "I don't push anyone to use it. If you don't like it fine, come back in a year and see if it has value now." (Comment by SIO interviewee)

   "There's not been any real pressure to use A-Space."

2. Concern that A-Space is interfering with getting production done

   "My boss gets emails alerts when I post. He says I'm spending more time on A-Space than doing work."

   "I say to my analysts, 'It's great that you're doing A-Space, but how much is getting into products?' It could be a diversion." (Comment by SIO interviewee)

3. Mandating that every analyst get an account

   "When it first rolled out we were just on our own. Then we were told you will have an account by this date."

   "Get an A-Space account is the instruction."

There are about 1000 DIA registered users.   Of these, over 500 DIA analysts have profiles that show zero points - meaning they have not created any workspaces, started or responded to any discussions, or posted any documents. Since none of these analysts were interviewed for this study, it is not possible to say whether they joined because they were required to or for some other reason.

It is possible, however, to make some extrapolation about their behavior from research done with Communities of Practice (COPs), another form of social media. COPs have existed in organizations for nearly ten years producing a wealth of research data, while Facebook has been around less than 5 years on the Internet and has only made its way into organizations within the last two years. Research indicates that COPs typically have a large number of members who read but never post, and who nevertheless gain considerable benefit from the community. For example, both in CompanyCommander and PlatoonLeader, (two very successful US Army communities) 80 percent of members never post comments.[11] Kilner, one of the founders of those sites said, "In interviewing people who were, quote, 'lurkers,' I found people who felt a tremendous sense of identity and belonging. By telling others about what they read on the site, they're participating in a lot of offline ways that are really powerful." In COPs, studied across numerous organizations, the level of 10-20 percent active users is adequate to build a culture in which the larger community views themselves as collaborative and is sufficient to generate benefits for both active and passive users.

Something similar may be happening on A-Space, in that many of the 500 analysts who have no points may be reading documents and discussions to gain situational awareness and may be identifying network colleagues without ever posting. Or it is possible that this group, or some sub-set, has simply complied with their managers' instructions to get an account and have not opened A-Space since. In either case their profile on A-Space provides those in other agencies with the knowledge of who their counterparts are, a benefit in and of itself.

How Analysts Use A-Space: For even the most active users, A-Space is not where they start the day. Email is the first thing analysts check when they come in. Booting up A-Space is often in response to alerts they have set up, so comes later in the day.

> "I look at email first. If someone is looking for something I know, I'll respond immediately. Then if I need a break I go back just to read."

> "If I had posted a discussion thread I'd go in to see who was coming in."

> "First thing I do is check email. I log into A-Space in the first hour. I look to see what has been updated on my space. I belong to 30 some workspaces. I look to see if there is anything relevant that I could link back to my site. I don't have alerts because it's too much with 30 sites. I look for what is happening on my topic just for situational awareness."

For others opening A-Space is sporadic - not necessarily even a daily activity.

> "I look at A-Space once a week. I don't read alerts. I look to see if there are polls, browse a bit."

> "I look at the workspaces I joined once in a while - just scan it."

> "I don't browse other spaces unless I see an update then I see if anything is of interest to me."

By contrast there are a few who would like the opportunity to do more on A-Space.

> "I'd like to work inside of A-Space totally. Now the research phase is mostly outside of A-Space. I use A-Space for 30 per cent of my work now, if I could read message traffic that would be another 20 per cent."

> Several interviewees mentioned the need to manage their time on A-Space. It seemed to them easy to get sucked into interesting discussions.

> "I go on A-Space later in the day. I do email first, traffic second. I look at A-Space alerts and will click on it. But I carefully manage my time."

"If I have 5 minutes to spend in A-Space it might become 15 minutes and then you have to back out."

Creating and Maintaining a Workspace: If questions and responses are the lifeblood of A-Space then workspaces are its heart. Everything in A-Space happens in a workspace. Each workspace has an owner, typically the person who created it or in some cases, took it over from someone else who created it. The owner's name is listed on the workspace. There can be multiple owners for a workspace and an analyst can own multiple workspaces. A little less than half of the 20 analysts interviewed for this study owned a workspace, although all belonged to multiple workspaces.

Analysts create workspaces in order to get a conversation going about a topic of interest to the analyst or to his/her team. Workspaces are self-initiated rather than being asked for by management. The selection of a topic is based on felt need rather than a systematic design. As one analyst noted, "There are huge geographic holes – it takes time to fill that out."

Being user initiated and emergent is a hallmark of social media. Rather than being hierarchical or planned, the content on A-Space is evolving. The emerging nature of workspaces provides flexibility in the following ways: 1) as soon as a need appears a new workspace can be set up, 2) readers can join tightly focused workspaces or those that have a broader scope as their need for situational awareness demands, 3) if only a very few people are interested in a very specialized topic, a workspace can still be set up just for those few. Thus some workspaces on A-Space have several hundred members and others only a handful.

Another hallmark of social media is the organic growth that often results in overlapping and redundant workspaces. The topics of workspaces on A-Space are region based, function based, or set up by staff for relaying information to analysts (e.g. The Defense Intelligence Digest, the analytic quality standards). Many workspaces are overlapping in scope for example a workspace may cover a large geographical region (e.g. Middle East) and there may also be countries within that region that have their own dedicated workspaces. Likewise, functional workspaces (e.g. missiles) may address that function across all countries, while other workspaces may be dedicated to a very discrete function within a specific country or region. Although most of the analysts interviewed were not troubled by the overlap caused by the organic growth, a few felt categories of workspaces should be better planned and organized.

"A-Space keeps having new groups pop up. I hope it doesn't get bogged down with too many single topics. If it does get too detailed then it needs a better organization. I wish they would break it down by categories. Tags are hard to read. I find all the tags confusing."

"It would be helpful to be able to map A-Space other than the tag cloud. There might be some capabilities that I don't even know about."

Being the owner carries with it the privilege of choosing the level of restriction for the space, as well as altering the look and feel of the format. In reality few workspaces are actually restricted.

There are a variety of views about the role of owner. The most frequent are those owners who do not feel any on-going responsibility for the workspace after having set it up. Their attitude is that the workspace they set up is shared space and how it grows and changes is up to the A-Space community.

"I haven't really pushed the site. I thought I'd just see what happens."

"It's not more difficult being an owner than a participant – there are seven owners on this site."

"I don't do anything. I post my products and my questions. I asked anyone I knew to post and then it just grew. I don't tell people what they can or can't do. I have included the link to the A-Space site in my signature block in email."

Another view about the role of owner is that it is helpful to do a minimal amount of maintenance.

"It's a plant so I water it occasionally. If there isn't any activity I run polls or drop something in a discussion page."

A much smaller group of workspace owners holds a third view, that it is their workspace and they take responsible for how it is working.

"I keep track of who joins and the traffic on it. Every person who joins I add as a colleague. I make sure it is growing. I hold back when others can answer questions so I won't be the sole contributor. I'm the only owner, but there's a core group of us on the site. If we get a question, we copy the link and send it off to colleagues and say, 'Here's the link, please answer the question.' One responsibility is line of succession, who to designate in the future because I will leave in about a year."

"I check other's adherence to what I want on there. If it is not in the right format I'll remove it, or if it does not pertain I'll remove it. I would expect content managers to garden [e.g. closely monitor and modify] their workspaces."

Conclusions

A-Space Creates a Collaborative Culture that Serves as a Model for Collaboration

The most significant feature of A-Space is the open, collaborative, and appreciative culture that is developing. Through the on-line interaction, counterparts in agencies are coming to know each other as valued colleagues. The willingness to help others on A-Space is evident everywhere. The informality of the language and the friendly banter create the feel of a comfortable conversation among peers. There is a growing sense of trust that makes it acceptable to offer to one's thinking even when it is not completely formed. As A-Space numbers grow, it has the potential to make the interagency collaboration that is so needed, a reality. It is this *culture of trust* along with the *functionality* of A-Space and the *classification level*, which supports the analytic benefits that are accruing through analysts' interaction on A-Space, and could be a model of collaboration for any occupational skill in any venue.

A-Space Classification Level Provides Access to Long Obscured Documents

The classification level of A-Space that supports higher level compartments satisfies a long-standing frustration of analysts for a place to post documents that have too high a level of compartmentation to post on other cross agency collaborative spaces, such as Intellipedia or Intelinlk. With A-Space analysts have been able to take documents "out of their shoeboxes," tag them, and put them where other analysts across the IC can access them. Posting their documents particularly benefits teams who work on more specialized, often technical topics organized around threat functions rather than countries or regions, making their work more visible to the rest of the IC, and thereby increasing their opportunity for collaboration.

A-Space Functionality Promotes Networking Across Organizational Boundaries

A-Space is simple to learn, not requiring programming language or codes to build workspaces or participate in discussions. The profile function of A-Space gives easy access to the expertise of other analysts, the workspaces others participate in, and who they connect with as colleagues. All of which can be accessed by a single keystroke. The interviewees in the study reported that, as they read the discussions and documents, they regularly clicked on the writer's profile to gain insight into how to evaluate what they were reading. Profiles aid analysts in identifying others interested in the same topic. For many of the interviewees, finding counterparts in other agencies is the most valued aspect of A-Space.

A-Space Enhances Users Situational Awareness

For analysts who are active on A-Space, it is impacting how *quickly* they get information for situational awareness. A-Space makes accessible a *diversity* of information and perspectives that analysts would not have access to through their normal channels. It is the unexpected, often only tangential bits of information that provides the

opportunity to learn "what analysts did not know that they did not know." Having more "eyes on target" makes the discovery of weak signals in the "wash of data" more likely.

There is benefit for those who are not on A-Space as well, because the knowledge their colleagues access through A-Space then lives within the team and can be discussed and taken into account. Situational Awareness benefits from the functionally of A-Space which allows analysts to tag [1] information and to see all the responses to a question (rather than a single response obtained through email). It also allows questions and answers stay on-line after discussion end.

A-Space Allows Users to Augment their Ability to Interpret Information

The information made available through A-Space brings with it different perspectives from across the IC that allow analysts to interpret ideas in new and broader ways. This asset comes through the products, previously inaccessible, as well as through the ideas and perspectives offered through the numerous discussions. It is not just the many individual responses; rather it is the *coming together of ideas*, which shapes new interpretations.

Analysts use A-Space to Test Ideas and Theories Early in the Knowledge Creation Process

A-Space provides the means to test ideas and theories against knowledgeable others and to do so early in the formulation process.   In this way testing saves both time and effort that would have been spent on those ideas that do not measure up, and it lends support and expanded rationale for those that do. Testing an idea on A-Space can lead to a vigorous discussion that results in a product.

Challenges

Analytic Production Process: With the advent of A-Space, there are now two models for conducting the front-end work of analysis. Those who participate in the A-Space model gain the benefits of greater cognitive diversity, the ability to test ideas and theories and greater situational awareness. The other is the existing model of production, with legacy processes in place for the front-end work. To some degree the choice of model is becoming a divide in how analysts think about analytic tradecraft. The challenge for management will be to allow these two models to co-exist until an obvious migration path becomes apparent. The choice will likely not be between the first or second model; rather, something emergent from both will surface.

Social Media: Within the last few years a number of social media venues have been introduced. A-Space, Intellipedia, Blogs, COIs and still other social media are planned for the future, leaving analysts the question of where to interact with their colleagues. Analysts currently express confusion about where to go for what, and that confusion will only increase as more social media come on-line.

Stovepipes: A-Space is a site that focuses on only one function, analysis. One of the benefits of a site having such a narrow focus is that it is easier to build an open and trusting culture. The downside of a narrow focus is that it excludes customers, collectors and others who could add value to the discussion. In the past, the hierarchical stovepipes that exist within directorates and agencies have limited collaboration across organizations. The new challenge is to avoid replacing the hierarchal stovepipes with lateral stovepipes that limit collaboration to within functions.

Participation: Social media tends to become more effective as the number of participants increase bringing with it an increase in cognitive diversity. Yet there are a large number of DIA A-Space members who do not post their thinking or ideas. In other settings (such as COPs) even silent members have been found to add value by reading on-line and then discussing the ideas with local colleagues off-line. This study did not learn how silent members are functioning on A-Space. Their silence may simply be the unintended consequence of management directives to "sign up" or they may be playing an important communication role. The challenge is to understand this group of silent members in order to know how to best deal with them.

Coaching/Mentoring: This study found that some SIOs were monitoring the activity of analysts reporting to them through the alert function on A-Space (being notified each time the analyst posted a response or asked a question). This limited study did not investigate what, if any, impact monitoring has on the level or nature of the participation of those analysts. Nor is it clear if monitoring may in some way be assisting SIOs in being more effective in their coaching and evaluation tasks. Finally it is unclear how widespread such monitoring is. The challenge is to understand the impact of monitoring A-Space activity both on the analysts and on the effectiveness of the SIOs.

Recommendations

Analytic Production Process: Analysts interviewed for this study reported that engaging in on-line activities (situational awareness, discussions of interpretation, testing theories, etc.) had a positive impact on the speed and quality of the front-end of analytic production. It would be useful to verify this claim by tracking a limited number of specific on-line exchanges to determine their actual impact. Confirming or disconfirming this claim would be valuable information for managers and SIOs who have responsibility for quality. If the hypothesis proves valid then it is recommended that more local support (identifying local power users[12]) be made available to analysts who are not on A-Space so they too can gain this benefit.

Explore the potential for moving more of the analytic production process into A-Space. There are a few analysts already using A-Space to co-author and coordinate intelligence products who can provide advice on what is working well and what must be improved to help craft new or revised processes. These early adopters could test the new procedures, evaluate the results, propose any necessary refinements, and retest revisions until satisfied. Experiments could start small—a single process, or product type—to ensure success and gradually build an online end-to-end product development system applicable across IC organizations.

Social Media: Analysts experience confusion about what social media (A-Space, Intellipedia, CIOs, Blogs, Sharepoint) to use and, as noted, that confusion will only increase as more social media come on-line. The recommendation is to allow that confusion to sort itself out. One of the hallmarks of social media is that is it constantly evolving rather than following a pre-designed plan. This evolving nature means that, for a time, social media systems will be overlapping and redundant. However it is this very characteristic that provides the necessary flexibility that will allow analysts to evolve social media be to "fit to purpose."

Stovepipes: A-Space benefits from being a peer-to-peer community of analysts, yet this (almost) exclusionary focus eliminates input from collectors, customers and others whose relevant knowledge could benefit analysts and who could themselves benefit from the interaction. The recommendation is to begin experimenting to discover how closely related roles could be introduced into A-Space without reducing the benefit gained from the current focused community. Given the progress already made with analyst/collector collaboration, a useful place to start might be to involve collectors on a limited basis.

Participation: Conduct an in-depth study to gain a better understanding of how A-Space is impacting analysts other than the active A-Space users, which were the focus of this study: 1) to understand how the silent members who are registered on A-Space are benefiting or benefiting others, 2) to understand the concerns of analysts who have not registered on A-Space, and 3) to learn whether these two groups and active A-Space users constitute a divide in analytic thinking that should be addressed more directly. Recommendations cannot be made until there is greater understanding about these two groups and their impact on analytic production.

Coaching/Mentoring Convene periodic discussions between SIOs and analysts using A-Space to explore the potential for mutually coexisting beneficial roles without negatively impacting either role. Some interviewees reported a negative reaction to having their time on A-Space monitored by SIOs, and some SIOs reported concerns about the amount of time analysts spend on A-Space. Periodic discussions may help SIOs become more effective coaches to analysts, may reduce their concerns about time spent on A-Space, and analysts may find productive ways to involve SIOs in the on-line discussions that impact the front end of analysis.

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