

A DIA Knowledge Laboratory Pilot Project

Our Experience with Intellipedia: An Ethnographic Study at the Defense Intelligence Agency

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Executive Summary

This study provides an initial ethnographic look at: 1) how intelligence analysts are using Intellipedia, 2) factors that influence Intellipedia adoption, and 3) how Intellipedia affects collaborative behavior. The study, which was limited to fifteen in-depth interviews in one office of the Defense Intelligence Agency (DIA), served as a pilot to determine the need for conducting a larger scale research effort to examine Intellipedia use patterns.

The results suggest that Intellipedia is already impacting the work practices of analysts. In addition, it is challenging deeply held norms about controlling the flow of information between individuals and across organizational boundaries. As one interviewee noted:

“[We] are seasoned enough to know this isn’t just a piece of software – this could change the way we’re doing business, and to me this is the antithesis of the way we used to do things.”

Core Observations

1. **Not everyone contributing to Intellipedia is a member of the Web 2.0 generation, and not all twenty-somethings are thrilled with Intellipedia.** (Another way to say this is that analysts make a choice about whether or not to contribute to Intellipedia based on a more profound rationale than being a member of a particular age group.¹)
2. **Intellipedia demonstrates that when analysts are provided an accessible space to share information they do so enthusiastically.**
3. **Intelink blogs and Intellipedia enable analysts to project a professional identity across historically stove piped agencies.**

¹ The Knowledge Lab believes the explanation points to different values associated with how an analyst characterizes their relationship between knowledge and the customer. For example, if an analyst believes that the customer is better served when the uncertainty and diversity associated with knowledge is revealed to the customer, then the analyst is more likely to share and collaborate throughout the knowledge creation process. If the analyst believes that the customer is better served by being certain about what is delivered, then the analyst is more likely to wait until near the final stage of product delivery before sharing. For the former, collaborative behavior is not constrained by a need for ownership. For the latter, collaborative behavior is constrained by ownership needs.

4. **Intelink blogs and Intellipedia enables divisions to promote their work across the IC.**
5. **Analysts are using Wiki software to create innovative ways of communicating.**
6. **Intellipedia is emerging as a knowledge marketplace**
7. **Intellipedia has the potential to change the nature of intelligence analysts' work.**

The fact that Intellipedia creates a collective space is exciting and liberating to many of our interviewees, but roughly a third expressed concern about the dangers of pooling information in an online environment that, compared to other intelligence channels, is relatively uncontrolled. They acknowledged both its power and its disruptive nature.

Based on this initial study, the Knowledge Lab recommends a more comprehensive study be conducted, led by a cross-agency team of researchers. This study would provide needed understanding about how to actively use Intellipedia to produce greater collaboration across the IC. Research questions might include:

- What factors influence the adoption of Intellipedia in other agencies? Do these factors vary across agencies?
- How is Intellipedia impacting established controls over information dissemination in different agencies? How are managers responding?
- To what extent is Intellipedia-oriented work emerging as a legitimate “product” among analysts?
- How effectively do page monitoring and peer review activities ensure the quality and accuracy of what is posted to Intellipedia?
- What new ways of collaboration are Intellipedia users spontaneously creating?
- Do agency divisions that have established a presence on Intellipedia have more collaborative efforts with other divisions and directorates than divisions that do not have a presence?

Key Terms defined

Collaboration - For the purposes of this study we take collaboration to mean the willing sharing of knowledge seen as useful to a community, as well as joint work to produce an intelligence product. Although the term collaboration is frequently used to mean peer review of an intelligence product to de-conflict it (a process also known as “coordination”), we did not include that activity in our working definition of collaboration.

Social Software - Social software is the driving technology behind the emergence of “Web 2.0.” Media expert Tim O’Reilly coined the term “Web 2.0” to designate the emergence of novel and creative Internet use patterns characterized by collective information sharing and knowledge creation. Software like blogs, wikis, networking sites, podcasts, and RSS feeds are all examples of social software associated with what is widely perceived as the second stage of the Internet’s evolution.

Wiki - One of the most important Web 2.0 applications is Wiki software, a collaborative environment that allows users to easily create, manage, edit, and link web content. A Wiki is a collaboratively edited website built using Ward Cunningham’s Wikimedia software, which he developed to facilitate the creation of web-based information.

Wikipedia - An online encyclopedia in which people post, edit, and retrieve content about millions of topics. Wikipedia runs on Wikimedia (see above). According to Wikipedia, the encyclopedia in 2007 comprised nearly ten million articles written in over 200 languages.

Disruptive Technology - A term coined by Clay Christensen in *The Innovator’s Dilemma* (1997). Disruptive technologies impact existing social structures—ways of interacting, power relationships, and access to key resources. As we write below, we believe Intellipedia is disruptive on at least two levels: to the existing reward system, and to formal and informal controls over the dissemination of information across organizational boundaries.

Affordance - Patterns of interaction or behavior that are implicit in the design of a technology often without the explicit recognition of the artifact’s creators. Many artifacts support unexpected applications as people make creative use of their features. Intellipedia affords its users a great deal of creativity in the creation and dissemination of many kinds of information (Norman 2002).

1) Introduction

This report provides an overview of an exploratory qualitative study conducted by DIA's Knowledge Laboratory in September and October 2007. The Knowledge Lab asked the authors, Nancy Dixon and Laura McNamara, to perform a preliminary ethnographic study to identify emerging use patterns around Intellipedia adoption in the Defense Intelligence Agency. The study was quite limited in scope: in 7 days, we interviewed fifteen staff members in three functionally-unique divisions within a single DIA Office. We spoke with these analysts about their use of (or reluctance to use) Intellipedia in their work. As we discuss below, the interviewees' responses raise interesting questions about the disruptive potential of so-called "social software" on organizational norms and practices in the intelligence community. However, our work indicates that social software like Intellipedia could dramatically enhance the development of cooperative and collaborative networks among intelligence analysts across organizational boundaries. We recommend that DIA and other agencies conduct similar studies around the impact of technologies like Intellipedia on organizational dynamics in the intelligence community, to ensure that emerging risks are appropriately managed so that the intelligence community can realize the potential of social software.

2) Our observations

In the following section, we summarize some of the key themes that emerged from the interviews. Since we did not engage in systematic sampling, and because our sample size is so small (15 people in an institution that employs thousands of people engaged in dozens of different activities), we are reluctant to claim any "findings." Rather, these are *observations* that derive from themes that recurred in the interviews we conducted. We discussed these themes extensively and decided that they have interesting implications for the future of Intellipedia – and, possibly, for the practice of intelligence analysis in the DIA workplace. We believe that well-designed studies of technologies like Intellipedia can offer rich insights into the changing culture of intelligence analysis. We hope that other agencies will invest in similar studies to better understand how Web 2.0 is changing the professional relationships in which intelligence knowledge is produced.

In our conclusions, we discuss the implications of these observations and offer suggestions for research questions that managers and stakeholders might pursue in evaluating Intellipedia's evolution and impact in the DIA workplace.

Core Observations

1. Not everyone contributing to Intellipedia is a member of the Web 2.0 generation, and not all twenty-somethings are thrilled with Intellipedia.

We came into the study expecting that younger intelligence analysts – people in their early to mid twenties who came of age as social software exploded onto the Internet – would be more likely to embrace Intellipedia for knowledge creation and exchange: posting content, editing others' pages, making contact with peers in other organizations and agencies. We also expected that older generations of analysts would be less familiar with, and therefore less likely to actively engage with, social software like Intellipedia. While we did not exactly disprove this hypothesis, we found that interest in, and comfort with, Intellipedia may not be that closely associated with generational cohort or even “tech savviness.” For example:

- Two of the most enthusiastic Intellipedia proponents were intelligence analysts in their fifties with over two decades of analytic experience. Neither had any familiarity with social software when they decided to develop content for Intellipedia. Their page, which elaborated on a recently-developed analysis, was selected as a “featured article,” and appeared on the “Welcome” page of Intellipedia in 2007 as an example of excellence in content development.
- Three of the twenty-somethings that we interviewed expressed skepticism and/or a lack of interest in Intellipedia. One analyst had never used Wikipedia at home, had no interest in social networking software like Facebook, and felt that putting content on Intellipedia was a distraction from an analyst's main responsibilities: responding to taskings and producing finished intelligence for decisionmakers. Another was new to the job and felt too overwhelmed with the “must reads” to get on Intellipedia, which he dismissed as “experimenting.”
- We interviewed two analysts, each of whom had over decade of experience in the DIA. Both were in their late thirties and worked in software development for intelligence applications; indeed, they told us repeatedly that they were “not Luddites.” However, they perceived Intellipedia as lacking adequate controls around information quality and dissemination. Both felt it risky to put loosely vetted information on a medium that, as one senior intelligence analyst put it, “any decisionmaker can get into and use.”

We are not sure of the extent to which “any decisionmaker” can view Intellipedia. Regardless, this perception indicates deep concerns about the way Intellipedia changes the nature of information exchange in the intelligence community. Indeed, as we reviewed our interviewees' assessments about the risks of Intellipedia, we began to think that generation and age only partially explain one's degree of enthusiasm for Intellipedia. In

addition to comfort with the workings of social software, one's view of Intellipedia is likely tied to one's perception about the risks and benefits of putting sensitive information on a relatively accessible medium. Indeed, all of our non-user interviewees told us that they perceive lack of control over Intellipedia content as a major drawback to the technology. As a senior intelligence analyst told us,

“Let me give you an example. Let's say I decide that my thought on the state of Castro's health should be in Intellipedia. I don't know anything about Castro's health, [but my discussion] is given the same weight as... a medical intelligence senior analyst who's been looking at Castro's health for a decade. Just on the face of it there's no way to weigh the comments and whether or not they're valid without knowing the person who made them - without knowing why you should believe them.”

And another analyst said,

“DIA is a combat support agency, first and foremost. So the kind of free flow discussion that happens in Intellipedia, if I were king for a day, would be better suited for a closed DIA environment...”

We found that our interviewees were not able to point to specific instances of a customer or decisionmaker accessing an Intellipedia page and using information that had not been fully vetted through DIA's processes.

“A lot of us had misgivings because anyone can just say anything – they could have an opinion in the middle of a proven paragraph and someone might take that for fact. You can't stop people from using it, you can't control that.”

It is plausible that concerns about people writing on topics about which they are uninformed and/or the ability to change Intellipedia pages that are already up, may be heightened by recent, well-publicized, and apparently malicious changes to Wikipedia (a well-known example is the anonymous Wikipedia article that falsely linked journalist John Seigenthaler to Robert Kennedy's assassination).

That said, Intellipedia differs from Wikipedia in important ways. Unlike Wikipedia, which enables both users and contributors to establish anonymous accounts, there is no anonymity in Intellipedia, which requires continuous attribution of content to named authors. In fact, the users we spoke with were typically very excited about the way Intellipedia affords them the opportunity to publicize their work and interests across the larger IC. As we discuss in Observation 3, this affordance – i.e., the fact that Intellipedia is enabling people to establish a professional presence across a wider peer community – is something that users are responding to enthusiastically.

Secondly, the users that we interviewed pointed out that every page they created has a “watch” function that notifies the original author – the article “owner” – when someone changes content on their page. Thirdly, all changes to a page are automatically listed under the discussion tab of the article so that anyone who visits the article – originators and readers alike – can see who made what changes and when.

Several of our interviewees were very active Intellipedia posters, and they reported that it is not uncommon for their content to be changed by the reader-editors that come into Intellipedia. However, the interviewees reported that few of the changes were substantive in nature. Instead, the preponderance of changes involved creating links, adding topic headings, making spelling and grammar corrections, or perhaps adding a paragraph to an existing article.

We found in our interviews that people who were most concerned about quality control issues in Intellipedia tended to be unaware of the passive and active controls built into Intellipedia. In contrast, those posting to Intellipedia appeared to have little concern about changes being made to their pages.

“I’ve not come across anything that’s wildly unexpected or that flies in the face of what we’re saying. It’s all reasonable, pretty much. I’ve got a good amount of confidence in what people put up there. There are bound to be errors here and there, but I think the vast majority is probably pretty good intel.”

“Maybe I have too much faith in the system - but why would you do that, what would make a person put up (inaccurate) information intentionally or even unintentionally. And even if they did and it was wrong, as soon as he put it there, there is an email to the person who controls the page and they can go back and say, ‘This is nuts.’”

While many have focused on Intellipedia and other social software as inherently attractive to twenty-somethings, our early research leads us to believe that willingness to experiment with Intellipedia is a more complicated problem. We can see the fuzzy outlines of two different and conflicting value systems around knowledge: one that favors getting as much information out into the community as possible as a means of improving the collective quality of intelligence knowledge; and one that favors controlling the dissemination of intelligence information to ensure that knowledge products are formally and rigorously reviewed and vetted before being released.

2. **Intellipedia demonstrates that when analysts are provided an accessible space to share information they do so enthusiastically.** One purpose of this pilot study was to assess how Intellipedia might be promoting

or encouraging collaboration across DIA or the larger IC. We did not find examples of analysts who had jointly produced an article for Intellipedia, nor examples of an Intellipedia posting leading to collaboration on a finished intelligence product.

Instead, Intellipedia appears to promote collaboration primarily in the sense of sharing information. For example, one interviewee described the creation of a “community of practice” page in which individuals in several agencies are jointly posting Intellipedia content. Several posters told us that they believe Intellipedia provided a good opportunity to share what their division had learned. Indeed, we heard of two division chiefs who were actively encouraging staff to develop content for Intellipedia. However, we found that other analysts were posting to Intellipedia voluntarily, without clear direction from their managers. These individuals seem motivated by a desire to make their division’s information available to others in the intelligence community. This appeared to be a type of branding function, that is, to show to others across the IC the valuable work a particular division was doing.

Sharing occurs in other ways as well. For example, many of the analysts used the discussion pages to find like-minded colleagues. One of the analysts we interviewed has a strong interest in GIS – geographic information systems. She described how she finds likeminded colleagues by going through the discussion pages of Intellipedia articles about GIS technologies:

“Once you’re at the page, you can go through the discussion, and I go through the edits and look at who is [entering], then you can find that person – it’s kind of like message posting – people gravitate toward their specialties. So looking at GIS information, I can find information on those people.”

Another “act of collaboration” was described by an analyst who deliberately posted what he knew to be an incomplete collection of items, with the intent of encouraging contributions from other analysts.

Interestingly, although many of our interviewees appreciated the potential for Intellipedia to support discussion among analysts, we only heard of one incident in which an article originator made contact with an Intellipedian who had made substantive changes to a page. In fact, although there is a tab labeled “discussion” on each Intellipedia page, we saw very few instances of true “discussion” (i.e., back-and-forth debate, reflections or comments on the content of the article) on the pages that our interviewees showed us. The discussion tab connected to each article primarily contained the listing of edits, and when we asked our interviewees to describe how they used the discussion page, a typical response was - as one interviewee told us - “That’s a feature I’m not familiar with or actually use.”

This raises interesting questions about Intellipedia and other social software as sites for the robust discussion and debate of controversial topics for which consensus has not emerged. This does not mean that debates are not happening in other areas – but among our interviewees, Intellipedia did not seem to be a space where robust discussion of controversial events was a routine activity, despite the presence of discussion pages where such debates could take place. As we discuss below, this raises important research questions about the ability of social software to encourage debate or raise controversial ideas in the context of intelligence problems.

- 3. Intelink blogs and Intellipedia enable analysts to project a professional identity across historically stovepiped agencies.** Unlike the online open-world Wikipedia, Intellipedia has a sister technology in the form of Intelink blogs. When we were doing our interviews and asked our respondents to describe how they used Intellipedia, most of our interviewees asked us to clarify if we meant Intellipedia specifically, or Intellipedia *and* the blogs on Intelink, or Intelink in general. Although they were cognizant of the difference between the three, they tended to think about all of them as part of a larger communication process – so that in answering our questions about Intellipedia, they would often veer off to talk about an Intelink blog or Intelink itself. When we inquired if a specific answer was referring to Intellipedia, our interviewees often told us that they were actually referencing a blog or an Intelink website, not Intellipedia per se.

Hence, we see Intelink, the Intelink blogs, and Intellipedia as mutually reinforcing technologies. Whereas Intellipedia is a place for posting intelligence-related information and research, blogs enable people to express opinions, to discuss issues and trends in the intelligence community, and to exchange views about their areas of expertise. Within the Intelink environment, Intellipedia and blogs enable analysts and divisions to create and project a professional identity in an otherwise closed community, which may explain the apparent popularity of the Intellipedia/blog capability among intelligence analysts.

One way to create a sense of one's identity and professional presence on Intellipedia is to create a personal Intellipedia page:

“I'm able to present myself, characterize myself... you can come in with a list of credential, but if you can't speak [individual's specialty] they don't want to deal with you. If you speak [individual's specialty] you get farther.”

At the same time that Intellipedians are developing and projecting their own presence into the virtual world of intelligence, they are using Intellipedia and blogs to gather contextual information on their peers. For example, one of the

ways analysts determine the validity of an Intellipedia page or change is to click on the author's link and look at their background. This frequently brings the reader to the contributor's blog: as several of our interviewees pointed out, it is not unusual for people who contribute to Intellipedia to maintain a blog, and to provide Intellipedia links to their Intelink blogs. The blogs provide a place for people to establish their identity. As one heavy Intellipedia user told us, people check his blog to see if he has the right credentials for the work he is doing: Does this person have the experience about this specific issue to be credible?

"In this business, hanging your hat on whether you've done a tour downrange – were you out and about or just at a computer terminal? Were you Green Zone or were you touring with a unit?"

Other interviewees told us that Intellipedia and its associated Intelink blogs can help analysts develop a rough initial assessment of a peer's credibility:

"You get an idea of what their specialty is and if you're lucky what their experience is. ...[if it is] someone who started 6 months ago then I'd be more likely to question their statements."

"If you just look at the changes a page has gone through, you can look at who did these changes and what their credentials are and it gives a better idea of what to trust and what not to trust."

- 4. Intelink blogs and Intellipedia also enable divisions to promote their work across the IC.** Similarly, we heard that several divisions are encouraging their staff to develop Intellipedia articles that represent to the community the expertise of a division. In two of the three divisions, interviewees felt that management was encouraging them to "get our stuff out there". All three divisions had a page on Intellipedia that presented the work of that unit.

"...with a DAR (Defense Analysis Report) you'll get at most maybe 50-100 people looking at it, but when it is on Intellipedia, if I package this right, I can reach the whole community."

"...we can develop brochures and articles and get it in Communiqué, Intercom, and Webzines. Who reads it? Whoever gets Communiqué - they're on foyer tables. But if I put that same article, well written so maybe it's even a featured article, it's in front of thousands of people. Then I can use that to drive traffic toward the site."

5. **Analysts are using Wiki software to create new ways of communicating.** When we think of the Wikipedia, we think of an online encyclopedia in which people post, edit, and retrieve content about millions of topics. In contrast, even within the small sample for this study, we found numerous examples of employees using Intellipedia in ways that diverge from typical Wikipedia use. For example, Wikipedia is not associated with such activities as targeted communication to customers, professional networking, or the creation of organizational websites. Intellipedia, however, affords all of these uses.
- Members in one division are responsible for making frequent site visits to customers. They had developed an Intellipedia page to post their travel schedule and to provide their hosts with information about the purpose of their trip and their technical and information needs. In doing so, they eliminated the need for multiple and repeat emails to host sites.
 - One division turned to Intellipedia to get information into the classified websphere when the need was perceived as immediate. For example, one analyst told us a story about using Intellipedia to squelch a burgeoning rumor that the crash of a small plane was an attempted terrorist attack. He was able to post accurate information and direct the rumor-mongers to the Intellipedia article.
 - All the Intellipedia users we identified described the value of Intellipedia for professional social networking. They described looking up a topic of interest, checking to see who had developed the page and who was editing or contributing to it, as a way of identifying those who had shared interests.
 - One division has been working to create a catalog of various classes of a technology that they track and study. They hope to fill out the catalog and determine how and where the technology is being used by posting their list of known examples and asking people to add to the list.
 - One enterprising employee created his own document portal/online library and accesses his own work and supporting materials via Intellipedia, rather than through his hard drive.

We were interested to find a variety of approaches to content creation for Intellipedia. Many derive Intellipedia content from finished intelligence. Others use finished intelligence products as a starting point for elaborating on content that might not fit in an existing hardcopy formats such as DIA's Defense Analysis Reports. Some contributors develop completely new content, while others "borrow" from Wikipedia as a starting point, then elaborate in the Intellipedia environment to create articles that are relevant for intelligence analysts. A concept that applies here is that of the "bricoleur" – a French word that describes artists who gather existing artifacts to be assembled into new works. We see intelligence analysts using Intellipedia

as a site for assembling collections of knowledge products relevant to particular topic areas, in a form of intelligence “bricolage.”

6. Intellipedia is emerging as a knowledge marketplace.

Many of the interviewees we talked to described Intellipedia as a first step in gathering information on a topic. As we discuss above, people who are creating content for Intellipedia seem to be writing articles that include links to sources for finished intelligence products, like DARs and Executive Highlights. Because wiki software makes it easy to hyperlink files, looking up a topic on Intellipedia seems to be a quick and efficient way to both create knowledge repositories and to access peer-reviewed finished intelligence:

“I try to make Intellipedia part of my day, to see if anyone has posted anything.”

“On Intellipedia it is easier to get to the DARs.”

“The key thing for Intellipedia for me is speed. You’re reading an article and you want to go to a particular piece of information in the article... you can click the link, go where you need to go, and get what you need.”

Even the people who criticized Intellipedia most strongly acknowledged occasionally look up information on Intellipedia. Interviewees told us that Intellipedia provides a quick, centralized, easy-to-use source of information to decipher such things as acronyms, logos, and unknown terms. For example,

“Acronyms in Intellipedia is one of my favorite pages.” (*Interviewee shows us page bookmarked in browser*)

The marketplace analogy is apt, given that users appear to both go to Intellipedia to “buy” or find information they need, as the above quotes illustrate. Moreover, as discussed in Observation Five, analysts also see Intellipedia as a place to “sell” to others the products they have produced. The marketplace of Intellipedia is making a greater amount of knowledge accessible - knowledge that might be obscurely categorized or buried deep within an agency’s files can now be easily linked in a single site. Not only are page authors creatively linking, but those who subsequently read the page and recognize that they own related content can add a link, too.

“Intellipedia is IC wide. Not everybody in the IC would have such an easy time finding DARs.”

We have characterized the knowledge marketplace as “emerging,” because we see initial signs of marketplace behavior, and because those interviewed

hold the idea of a knowledge marketplace as a hope for the future. As one interviewee put it:

“It would be great to have one common environment, to find out, what did CIA write; what did others write.”

7. **Intellipedia has the potential to change the nature of intelligence analysts’ work.** We saw new work behaviors in many of those we interviewed. As noted in earlier observations analysts in our study were using Intellipedia as a starting point for researching a topic. This new practice then led to other new practices, such as a potential increase in the diversity of sources for the DAR or report they were writing, made possible by easier accessibility to finished intelligence from other agencies and other parts of DIA.

Another change in analysts’ work is an obligation that several of our interviewees described: that they should promote their work and the work of their division by putting up pages on Intellipedia and by linking to others’ pages. They seem to be describing both a need and a responsibility to accurately display a professional presence on Intellipedia.

“We’ve actually gotten some encouragement from the Office Chief. I know a push to do more of the Intellipedia stuff is being encouraged all the way from Maples, actually.”

In these changes we see Intellipedia as having the potential to be a profoundly disruptive technology (Christensen 1997). For one thing, it is not clear whether or not Intellipedia “activity” is a distraction from, or a contribution to, the production of traditional intelligence products – from quick responses, to taskers, to full DARs. This uneasiness emerged in the interviews, as different interviewees told us that office and division chiefs were encouraging Intellipedia use, but simultaneously expressing concerns about Intellipedia as a distraction from taskers. Analysts are uncertain how much time spent on Intellipedia is appropriate, while managers are concerned about how to incorporate this task of populating Intellipedia into an already busy production cycle.

“What I find is that the senior level sees this as interesting, ‘We should try this.’ At a lower level – the guys that have to run the agency on a day-to-day basis, their concern is how do I manage this beast. Is it taking time away from the taskers? Where’s the metric for production – it’s the management issues that are tricky.”

“The real issues are two basic fears. The first is the basic fear of how do I manage this (*Intellipedia as an activity that his analysts are pursuing*).

The other is the substantive issue, how do I know that this (*actual content on Intellipedia*) is right?"

However, even give this awareness, the interviewees did not consider a chief's concern as intended to discourage their participation in Intellipedia. Instead, the Intellipedia contributors seemed to perceive these concerns as a difference of opinion.

A second process we might anticipate being disrupted is the way in which analysts are rewarded for production. There is a great deal of confusion about where Intellipedia should sit in the reward process. We heard managers express concerns that there could be confusion over whether or not their staff should get production credit for Intellipedia contributions. In contrast, we found that interviewees did not expect to receive performance credit from management, nor did they expect that Intellipedia articles would count towards production metrics. In fact, some indicated that since much of what they posted was taken from finished intelligence products they had produced, they had already received appropriate credit for their work, and Intellipedia was just another way to get the content into wider discussion.

The one exception to this relaxed attitude about Intellipedia credit appeared to be the Intellipedia "featured article." Featured articles are Intellipedia pieces that are chosen by a board of peers to appear on the Intellipedia "front page" for a period of time. These articles are examples of excellence in Intellipedia content creation. Not only does winning featured article recognize an individual's good writing skills, but also provides wider exposure for the division's work.

Several interviewees thought that managers should consider giving their staff credit for having gotten a piece recognized as a featured article. Interestingly, however, few of the interviewees we spoke with understood how featured articles were selected, and the anticipation of "winning" featured article status did not appear to be a motivating factor in posting. Rather, people who post seem convinced that getting information out to the large community is part of providing good intelligence, and that making their division's work more accessible was a worthwhile task in itself.

In formal interviews and in casual conversations with our DIA colleagues, we heard people express strong feelings about Intellipedia, but surprisingly, we did not encounter a single DIA staffer who had *not* heard of Intellipedia. When people are this familiar with a new technology and are able to express reasonable opinions about how the technology works and its impact on their workplace (both positive and negative), it typically indicates that the innovation is well on its way to widespread adoption (see Rogers 2001).

Implications of Our Observations:

There are a number of potential implications of the observations identified in this study.

- Intellipedia is not yet formally incorporated into the “official” production cycle, and perhaps because it sits outside formal information channels, it appears to be allowing inventive uses to emerge. We saw analysts using Intellipedia for everything from looking up acronyms, to creating portals for communities of practice, to networking with colleagues in other agencies. We expect analysts are putting Intellipedia to other creative uses and are curious about what Intellipedia will become.
- Some interviewees voiced the wish for a single site they could go to for everything they needed. We are particularly interested in watching the evolving relationship between Intellipedia and other knowledge repositories in the DIA environment.
- Within DIA the necessary specialization of knowledge has often led to an unawareness of the knowledge residing in other directorates or even within one’s own directorate. Intellipedia has the potential to increase awareness facilitated by the ease of search across topics. This increased awareness of the related knowledge of others may be the most potent aspect of Intellipedia for the Intelligence community. Certainly, analysts cannot collaborate across divisions, directorates or agencies unless 1) they are aware of others that have related knowledge, and 2) they have some sense of the credibility of others’ knowledge. If Intellipedia can strengthen this awareness and credibility, then the first hurdle of collaboration is overcome.
- The fact that all three divisions have a presence on Intellipedia, that those involved are using several forms of exchange (Intellipedia, blogs, VTC, email) to the same end interchangeably, and that this activity is voluntary on the part of those posting, argues a willingness to exchange ideas and knowledge with others in the IC. It is an often-stated view that members of the IC are unwilling to share their knowledge. However, the interest in sharing both individual and division knowledge that we heard from those we interviewed may indicate that the issue has been less about unwillingness and more about the need for a suitable means for getting information out there. Perhaps Intellipedia serves that end.

Finally, we note that many of the observations in this study may be a consequence of the phase of development that Intellipedia is currently in at DIA (e.g. initial building of the repository). If the phase of development correlates with the type of user currently involved, then when Intellipedia is more fully populated the use pattern and type of collaboration we describe

may change substantially. How use patterns evolve as Intellipedia's content matures is worth watching closely.

Future Research Questions

While our study raises many interesting themes, we see three areas of inquiry that would strongly augment the DIA's understanding of Intellipedia's impact on analytic culture:

1) Researching Use Patterns:

We recommend a more extensive survey of Intellipedia. A study entailing a thorough review of its content and the development of a typology of use patterns, would give decisionmakers some sense of how analysts are using Intellipedia to get past the limits of or enhance standard websites and email. Such a study might help decisionmakers evaluate the need for emerging forms of collaborative and information-dissemination software (for example, A-Space or Second Life).

2) Researching Factors that Influence Adoption:

It would be worthwhile to conduct a formal study focusing on factors that influence the adoption of Intellipedia and other social software. We can envision a very interesting mixed-method (quantitative and qualitative) survey, one that explores factors that positively and negatively predispose analysts to Intellipedia in particular and social software in general. Some factors worth exploring are age, computer (software) literacy, experience with social software, and perceptions about the "best ways" to control access to intelligence information. In particular it would be helpful to study the extent to which familiarity with Intellipedia impacts the level of concern, given that all of those who expressed concerns in this study also classified themselves as non-users, while those that posted regularly were relatively unconcerned. This raises the question of whether it is only those who are unconcerned that are using Intellipedia or whether using Intellipedia reduces one's concerns.

3) Researching How Intellipedia Impacts Collaboration:

Given that one of the stated purpose of Intellipedia is to promote collaboration, a more in-depth study to understand the nature and types of collaboration that are occurring between divisions and directorates across the DIA, as well as across the IC could prove useful to enhancing that effort? Potential questions derived from this limited study include:

- Do the social interactions that occur in the Intellipedia context go beyond Intellipedia? If so, what additional benefits occur?
- Do divisions across DIA that have established a presence on Intellipedia have more collaborative efforts with other divisions and directorates than divisions that do not have a presence?

- To what extent has the presence of an individual or division on Intellipedia increased others' use and referencing of their finished intel?

Conclusions

Our observations can be summed up in a single sentence: we see Intellipedia as a technology worth watching, as it has the potential for changing the way analysts work, both how they work and with whom. For one thing, Wiki software is very easy to learn. None of the interviewees who described themselves as active content creators had taken a course in Intellipedia; instead, they seem to be self-taught: as one interviewee told us, "I just looked at other pages and figured out the coding for myself."

Secondly, Intellipedia affords a wide variety of uses, another characteristic that predisposes an innovation to widespread adoption. Indeed, as we discussed earlier, we discovered multiple emerging use patterns for Intellipedia, ranging from very simple forms of interaction (looking up acronyms) to active engagement (content creation for one's division, establishing knowledge repositories, maintaining a personal Intellipedia page, professional networking).

Thirdly, Intellipedia is generating a great deal of discussion. We found that people have strong opinions about Intellipedia. One enthusiast user emailed McNamara to say that he felt Web 2.0 represented the future of intelligence analysis. In contrast, one nonuser spent nearly an hour describing the dangers of information sharing in Intellipedia, while another perceived management requests that he create Intellipedia content as a distraction from his real work: responding to taskings and producing finished intelligence. While Intellipedia might catch on quickly, we see it as a disruptive technology that has the potential to create conflict as people negotiate limitations around its appropriate uses. In a community as conservative as the intelligence world, Intellipedia's evolution needs to be carefully and systematically monitored to determine both the benefits it confers and the risks it creates.

In sum, Intellipedia can only thrive as a shared project, and will therefore challenge deeply held norms about the importance of controlling the flow of information – not just between individuals, but also across organizational boundaries and even between branches of government. The fact that Intellipedia creates a collective space is exciting and liberating to many of our interviewees, but roughly a third expressed concern about the dangers of pooling information in an online environment that, compared to other intelligence channels, is relatively uncontrolled. They acknowledged both its power and its disruptive nature:

"[We] are seasoned enough to know this isn't just a piece of software – this could change the way we're doing business, and to me this is the antithesis of the way we used to do things."

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APPENDIX A: Study Methodology

The goal of this study was not to evaluate Intellipedia, but to cast a wide net to capture as much information as possible about how analysts think about, interact with, and perceive the importance of Intellipedia in their work. We wanted to identify emerging themes and issues around Intellipedia, to provide other researchers and evaluators with some grounding information and starting points for future studies. Accordingly, we identified several research questions for this study, all exploratory and open-ended:

- What does it mean to “use” Intellipedia?
- What are the perceived risks and benefits of Intellipedia for intelligence analysis?
- How might Intellipedia be impacting collaborative and cooperative work practices among intelligence analysts?

Working with managers in the Tactical and Operational Support Office (TOSO),² we identified three divisions in which intelligence analysts were known to be “using” Intellipedia. In August and September of 2007, we met with the line managers in each of these divisions and requested names of both users and non-users in their divisions and sought permission to interview staff. We then contacted the individual analysts ourselves via email and requested an hour-long interview to discuss Intellipedia use. We conducted 15 interviews over approximately eighteen hours of interaction with the staff:

- Three managers, including the TOSO senior manager; one senior intelligence analyst, and eleven line staff;
- Thirteen men and two women;
- Ten interviewees identified as active users, while five identified as non-users.
 - Of the five non-users, one was a line manager, one a senior intelligence analyst, and three were intelligence analysts. The line manager and senior intelligence analyst each have over a decade of experience in intelligence analysis, while the three line staff members were all in the first five years of their careers at DIA.

We conducted most of the interviews in staff cubicles, so that the interviewees could open up Intellipedia and show us examples of content they access and/or generate. We used open-ended questions and kept the interviews very unstructured, allowing interviewees to take the conversation in directions that they felt important before circling back to the list of questions. Most of the data for this study was gathered through interviews, though we did spend some hours surfing Intellipedia to familiarize ourselves with the environment. We also had our

² All names of organizations and individuals are pseudonyms, to ensure the confidentiality and anonymity of the interviewees.

interviewees give us brief “tours” of Intellipedia sites they had created an/or used in their work.

Although the existence of Intellipedia is not classified, most of the subject matter that our interviewees are dealing with is classified. Accordingly, we had to take all our notes on a laptop computer approved for processing sensitive compartmented information – a tool very kindly provided by our Knowledge Lab sponsors. Once we had cleaned the interview notes for typing errors (fixing spelling mistakes, clarifying our note-taking shorthand), we sent each interviewee an electronic copy of the “transcript” using JWICS email. In most cases, these transcripts were very complete records of the conversation, including interviewer questions and prompts and detailed notes of interviewee responses. Interviewees corrected their transcripts and portion marked the notes for classified data so that we could safely extract unclassified information from the interviews. They then returned the transcripts to us on classified email through our DIA accounts, and through McNamara’s IC E-mail (“icemail”) account at Sandia National Laboratories.

When we were able to do so, we conducted the interviews as a team (about half of the interviews), with one of us taking notes on a laptop as the other asked questions and gave prompts. Because of scheduling conflicts we split about half the interviews between the two of us. However, because we had developed the interview questions as a team and conducted the first few interviews together, we ended up asking similar questions and probing interviewees to elaborate on the same topics. Our transcripts indicate parity in our data collection styles.

This study was reviewed and approved by the Human Studies Board (HSB) at Sandia National Laboratories in September 2007. In accordance with the approved study design, we made it clear to managers and staff that the interview data could not be used for work performance evaluation purposes, and that we were committed to ensuring the anonymity and confidentiality of our respondents. All participants were provided detailed explanations of the study’s purpose and the methods we were using to ensure their anonymity and confidentiality. We are pleased to report that none of the managers involved in the study challenged the boundaries we set around the information we gathered. None asked us for data or information about their staff. While the interviewees seemed very comfortable sharing opinions, even when they recognized that their views differed – sometimes strongly – from those held by managers. We are grateful for the interest and support that our interviewees, their fellow staff members, and their management expressed for the study, and their willingness to participate so conscientiously, particularly given the stressful environment and busy schedules that characterize the analytic workplace.