The Role of Innovation:
Creating a Culture of Improvement

by Adrian Wolfberg and Bryan A. Pelley

UNREALIZED INNOVATION

In late 2004, leaders within the Defense Intelligence Agency (DIA), America's premier provider of military intelligence to our nation's warfighters and policymakers, convened a group of the Agency's top analysts and technologists in a conference room in DIA's headquarters. The Agency wanted to show how it could improve the way it did business to deliver a greater understanding of one of the world's threatening countries. Critics argued that while the wake-up calls of 9/11 demonstrated a clear need for the Intelligence Community to change its mode of operations to become more collaborative and creative, few substantive changes had taken place.

By 2004, DIA and the rest of the Intelligence Community operated essentially the same way it had prior to 9/11. While many of the most vocal critics were members of Congress and the American press, increasingly the calls for positive change came from within DIA itself. A growing cadre of DIA employees, concentrated heavily in the senior leadership ranks and the ranks of new employees hired in the aftermath of 9/11, felt that DIA needed to take stronger steps to adapt to the challenges of the 21st century.
The group that DIA leaders had just called together was to be one of the numerous examples demonstrating change within DIA. The group would form the basis of a program to develop innovative approaches to exploring an enduring hard intelligence problem. The new ideas, tools, and approaches developed through this effort would then be infused in other parts of DIA. The analysts and technologists in this special project had a virtual *carte blanche* to bring in best-of-breed technologies and analytic methods. They were encouraged to create their own specialized tools and methods where existing capabilities fell short.

After four months, the project was completed without making significant progress in improving business practices although some progress was made in understanding its hard problem. The line organizations that contributed personnel shifted those resources from one task to another, often disrupting continuity of effort. Few new tools or techniques were adopted, regardless of whether internally developed or imported from outside DIA, and virtually none was transferred from the project team to other parts of DIA. The organization itself was resisting change. DIA learned a hard lesson that many large organizations struggle with. They need a culture conducive to innovation. And without that culture, the power of innovation remains unrealized.

INNOVATION: WHAT AND WHY?

But what is innovation? In its most basic form, it is simply the act of introducing something new; however, if innovation is to have any real value for an organization, it must have a purpose—introducing something new to *achieve a specific change*—and it must achieve its purpose to be successful.

For organizations in a free market, the imperative to innovate is often about outlasting the competition and increasing profits. Businesses, in competition for resources and customers, innovate their products, services, and processes to reach new markets, new customers, and new levels of efficiency. The imperative to innovate exists in government as well, and particularly in the area of national security. But in this case, the pressure to innovate comes from the constant adaptation of adversaries who seek to damage U.S. interests while thwarting the attempts of the Intelligence Community to detect their actions. Intelligence agencies must hunt, prepare, deliver and protect its product simultaneously. At the same time they must anticipate the adversaries' next move and the move after that. This is competition with the highest stakes. If an intelligence agency is wrong in its estimates, it is not just revenue that will be lost – lives can literally hang in the balance.

THE RIGHT INNOVATION FOR THE RIGHT JOB

Depending on whom you listen to, there are only a handful of basic plots in all of literature. This may not seem important to readers or movie-goers, but to the creators of entertainment the kind of story they are presenting helps determine marketing strategy, casting, and

thousands of other decisions. Similarly, there is a useful way to think about types of innovation. The first is best described as the bright idea your organization created; the second as somebody else's bright idea that you have applied to your organization. The third type, much less commonly recognized, is the need to innovate the organization itself, to make it more receptive to change and the other types of innovation. This three-part categorization framework can be used for determining and deploying the right kind of innovation to address your organization's needs.

Most discussions of innovation tend to focus on the first two types of change – the creation of new ideas or the adoption of bright ideas from others. When organizations seek to become "innovative" they often focus their time, money, and attention in these two areas. What "hot, new" technology can we develop to become industry leaders? What new management methodology can we adopt to slash costs and improve efficiency?

- **Creating Change (Type 1 Innovation):** Perhaps the most widely recognized form of innovation is simply the development of new products, services, or intellectual capital by an organization. Most of us associate this form of innovation with entrepreneurs in garages or engineers in large research and development (R&D) labs. It is represented by Steve Jobs and his friends inventing the Apple computer or, more recently, Apple Inc. creating the iPod and the iPhone, by the Advanced Research Projects Agency (ARPA) creating ARPANET (the forerunner of the Internet), by Motorola developing Six Sigma[1], and other examples. For many commercial firms, this type of innovation is often seen as a part of an organization's business model, and many commercial organizations are structured to quickly introduce new ideas to the marketplace. While the results of this type of innovation are often associated with commercial products designed for external customers (e.g., the iPod), these innovations can just as easily be destined for internal use and improvement (e.g., Motorola and Six Sigma). Put simply, it is a bright idea created by an organization.

- **Incorporating Change (Type 2 Innovation):** The second form of innovation involves the adoption of Type 1 Innovations from outside the organization[2] to create change or improvement. In this case, organizations look outside and see changes elsewhere that they would like to leverage to some end. Most of us associate this form of innovation with images of large, well-established organizations that adopt the latest technologies or implement the latest management principles,

either to improve processes or simply keep pace with a competitor. We see this type of innovation in the U.S. Intelligence Community's use of Wikipedia's software in its innovative information-sharing medium, Intellipedia, and in General Electric's adoption of Motorola's Six Sigma process, which has generated an estimated $10 billion in benefits to the firm[3] and is now considered a part of GE's culture.[4] Put simply, it is a bright idea taken from outside the organization.

- **Innovating Culture (Type 3 Innovation):[5]** Why is it so difficult for large organizations to become "innovative?" Why do attempts at the two common types of innovation often meet with frustrated or limited success? It is usually because the organizational norms and culture are not ready for significant change and improvement. The organization lacks key factors that allow new ideas to flourish and thrive. Internal processes and the organizational structure are not conducive to encouraging new ideas and creativity. The reward and promotion system often recognizes, explicitly or implicitly, conformity to old norms and behaviors. Hierarchical structures limit the free flow of knowledge and new ideas.

Large cadres of middle managers, who have reached their position by learning the intricacies of the current "system," openly or subversively resist efforts to change that system. The organization lacks a *culture of innovation*. Without a culture of innovation, the ability of the organization to effectively implement the two most widely recognized forms of innovation will be limited. You cannot become an innovative organization simply by trying to develop or adopt new ideas. Without setting the conditions for a culture of innovation, a culture eager to adopt new ideas, and a culture committed to learning and improvement, the more common types of innovation have no place to take root and grow. To support the adoption of the two more common types of innovation, then, a third type of innovation exists. It does not focus on the generation or adoption of bright ideas themselves but rather focuses on changing the culture of the organization and making it more receptive to the other two types.
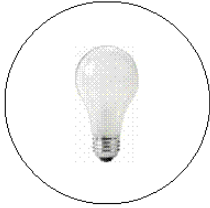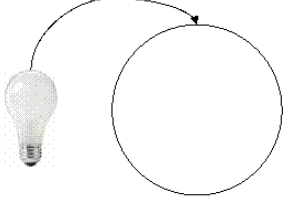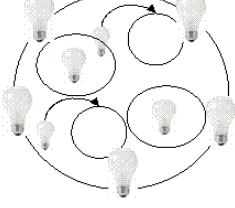
Types of Innovation

Type 1 Innovation *Creating Change*	Type 2 Innovation *Incorporating Change*	Type 3 Innovation *Innovating Culture*
A bright idea created inside the organization; creating change through the internal development of new products, services or processes.	A bright idea from outside the organization that is applied to the organization; these product, service or process improvements may or may not be new in-and-of themselves, but are new and innovative when applied to the adopting organization.	Changing an organization's culture itself – creating an environment where the bright ideas from Type 1 innovation and Type 2 innovation can take root and flourish

Figure 1: Types 1, 2, and 3 Innovation

INNOVATING CULTURE, THE MOST CHALLENGING TYPE OF INNOVATION

How does an organization create a culture of innovation, transforming itself into an organization committed to learning and improvement? Pursuing Type 1 and Type 2 innovations will not make an organization more innovative in and of itself, although these types of innovations can serve as important "stepping stones." The key is that these types of innovations are not pursued simply for the sake of innovation, but rather are carefully chosen and selected to challenge and shape specific aspects of an organization's culture in a deliberate way.

The specific bright ideas selected are pursued as much for their ability to help shape and change the culture of the organization as they are to create any specific improvement in operations, profitability, or efficiency. Moreover, these ideas are implemented in such a way that the implementation itself serves as an exemplar for the cultural norms the organization is trying to adopt. The Defense Intelligence Agency's Knowledge Lab has been pioneering such an approach over the past three years to help transform the culture of DIA – and has demonstrated real, tangible progress in helping to create a culture of innovation and improvement within the Agency.

A CASE STUDY FOR INNOVATING CULTURE

Four years ago DIA's senior leadership recognized the need to create change within the Agency. Its 2004 Strategic Plan contained a goal to become a highly networked, knowledge-based organization. As a result of this goal, DIA created the Knowledge Laboratory to help create a culture of innovation.

The Knowledge Lab is a small *volunteer-driven* organization within the Chief of Staff's office at DIA. With only three full-time staff and additional consultants, the Knowledge Lab depends primarily on volunteers who make commitments over and above their normal job requirements to help create the future of DIA. The Knowledge Lab depends on the line organizations of the Agency for participants and innovative ideas, but is independent from old reporting authorities and "lanes in the road" – maintaining a position of *interdependence* with the rest of the Agency.

The Knowledge Lab recognizes that organizational change begins with the behavioral change of individuals. The Lab is determined to be *people-focused* to create and foster innovation-minded people. Unlike a traditional R&D lab, most of the Knowledge Lab's projects do not focus on

science or technology, but rather on individual and group behaviors – especially collaboration. Each of these values contributes to the end goal of changing the culture of DIA to be a highly-networked, knowledge-based institution open to change and continual experimentation and improvement.

The Knowledge Lab as an organization is itself an example of all three types of innovation. The creation of the organization was a Type 1 innovation — establishing an entirely new type of organization within DIA, independent of the existing bureaucratic structure but interdependent on other DIA organizations for support, focused on changing behaviors, and overcoming the "zero-sum game" mentality that plagued the existing bureaucracy. The Knowledge Lab's process model, the mechanism through which it identifies problems within the DIA and intervention techniques to address those problems, was adopted and adapted from best practices developed in industry and academia, a Type 2 innovation. Finally, the entire mission and function of the Knowledge Lab is about Type 3 innovation – serving as an "engine of change" developing activities to drive DIA toward a more innovative culture.

The Knowledge Lab uses "pilot programs" as the core means for driving change at the Agency. Pilot programs are short duration efforts, usually experimental in nature, that address unresolved problems in a manner tailored for DIA. At their core, these pilots involve the creation of bright ideas or the introduction of bright ideas from outside of the Agency or both – Type 1 and Type 2 innovations. But these innovations are always directly and deliberately targeted at some aspect of DIA's culture that needs improvement – making each pilot an example of Type 3 innovation at work.

The Knowledge Lab's role beings with identifying aspects of the DIA culture that need to be changed. Specific pilot programs are then developed to address these aspects – knowing all along that the desired outcome is to move increasingly toward becoming an Agency continually open to new ideas.

The earliest pilot programs conducted by the Knowledge Lab targeted very specific attributes of DIA's culture. One of the most fundamental problems within DIA was the struggle to have open and honest communication between Agency offices and personnel. As is the case in many large bureaucracies, hidden agendas and motives reigned in many personal communications – and employees were not sure that should challenge what they heard. The 9/11 Commission Report and the Weapons of Mass Destruction Commission also highlighted the need for an analytic workforce able to challenge the assumptions of others in an open and respectful manner.

In response to these needs, the Knowledge Lab developed a pilot targeted at increasing open communication within DIA, with a specific goal of developing analysts able to reflect critically on their ideas, as well as those of others — *"Critical Discourse."*

KNOWLEDGE LAB PROJECTS

Critical Discourse: Critical Discourse uses a workshop forum to bring in to DIA – specifically, the skills of inquiry (asking effective questions), and the skills of advocacy (more effectively presenting ideas)— an example of Type 2 innovation. The workshop is conducted on three days over a three-month period, with individual coaching sessions held between each meeting. It is notable that all of the innovations the Knowledge Lab has brought in are spaced out over time, recognizing that any significant change requires time to absorb and practice. The workshop days are highly interactive, and feature collaborative work sessions that focus on participants' daily interaction challenges.

Critical Discourse was first piloted with volunteer groups of analysts. These early participants reported more open communication with their team members and supervisors, which allowed them to more openly challenge others' thinking and more effectively offer their own thinking. Based on this initial success, many Agency leaders have encouraged their analytic managers and intelligence officers to participate in ongoing iterations of the pilot. On the surface, participants gained new communication skills; but on the deeper level, participants developed innate awareness of the value of the open exchange of ideas and the need to challenge ideas and assumptions – critical first steps toward a culture of innovation and improvement.

Critical Discourse was an early example of using Type 2 innovation to create Type 3 innovation – a fundamental change in DIA's culture. Additional pilots targeted other specific aspects of DIA's culture using Type 1 and Type 2 innovations. Progress, by design, was slow and gradual. Small steps were needed to demonstrate to the workforce, long entrenched in a bureaucratic and often inflexible culture, that change really was possible. As these initial pilots yielded success in specific areas – for example, as Critical Discourse demonstrated real improvement in open communication across the Agency – many in the Agency began to believe in and support the need for greater change and improvement.

The Knowledge Lab captured and capitalized on that growing sentiment and began to alter its focus. Rather than solely sponsoring pilot programs that focused on

specific aspects of the Agency culture, the Knowledge Lab began experimenting with pilot programs designed to instill Type 3 innovation behaviors within the culture of the Agency itself. Instead of being the sole source of Type 3 innovations, the Knowledge Lab wanted the workforce itself to come up with or incorporate ideas for improving the Agency.

Full Spectrum Analysis: The first of these efforts sought to challenge the "analytic tradecraft" of the Agency. Since 9/11, the existing methods for intelligence analysis — long a legacy of the Cold War—faced heavy criticism. To develop more adaptive methods of intelligence analysis, methods that could change and evolve to keep pace with new adversaries and missions, DIA needed analysts who could challenge the status quo, enhance collaboration, and apply a variety of new analytic techniques. Fundamentally, it needed to instill a mindset of Type 3 innovation within the analytic workforce, creating analysts who would actively seek out and employ new methods that either they created or that they identified from outside of DIA. To meet these ambitious goals, the Knowledge Lab created the *Full Spectrum Analysis (FSA)* pilot program.

The FSA pilot program brings together small groups of intelligence professionals to work on a hard intelligence challenge identified by Agency senior leadership. Over the course of three months, Knowledge Lab facilitators create an environment where the participants are encouraged to experiment with new techniques and ideas of their own creation (Type 1 innovations), while simultaneously being exposed to a variety of new approaches and methods from outside DIA (Type 2 innovations). FSA participants have the opportunity to present their ideas and discoveries to the top levels of the Intelligence Community; several of their ideas have been implemented within DIA and their recommendations have spawned other Knowledge Lab pilots.

The highly visible example of "rank-and-file" intelligence professionals making recommendations for change to senior leadership – and seeing those recommendations accepted and implemented – serves as a powerful example to the entire DIA workforce that the Agency is truly becoming a culture committed to innovation and improvement. An equally important outcome is that many of the participants in FSA emerge as committed change agents who return to their home organizations ready to support and encourage other innovation efforts – advocates and agents for Type 3 innovation at the grassroots level.

Seeing the FSA pilot program's success in generating Type 3 innovative behaviors in small groups of intelligence analysts, the Knowledge Lab sought to spread these behaviors across the entire Agency workforce and all functional areas. With the full support of DIA's Director, a new pilot, *Crossing Boundaries*, was created to help all Agency employees have the ability to make a difference – aware that their ideas would be welcome and that leadership would support their suggestions for change.

Crossing Boundaries: Crossing Boundaries is a monthly session where the senior-most leader (typically the DIA Director) invites the Agency to share new ideas. Crossing Boundaries is not a complaint session or "suggestion box" – it is an opportunity for employees to constructively bring their concerns and solution ideas (which often involve a Type 1 or 2 innovation) to DIA leadership in an interactive forum. Each person proposing a Crossing Boundaries solution becomes an "Idea Holder," responsible for seeing that change through to a go/no-go decision. The Knowledge Lab provides coaching and assistance to the Idea Holders while they work on their business case for implementing their ideas. The Knowledge Lab also, with the full support of the Director, connects Idea Holders to DIA functional managers and support personnel who can help with the mechanics of making their idea a reality.

The new ideas that have come out of Crossing Boundaries have produced great effects for the Agency – DIA has seen over 94 new Agency efforts (policies, processes, capabilities, etc.) launched since the inception of Crossing Boundaries two years ago. But its greatest effect is that employees can see that innovative ideas are valued and will be taken seriously; DIA employees from all parts of the Agency now feel empowered to make a difference in the Agency and morale has improved. With the successes of Crossing Boundaries—building on the successes of Critical Discourse, Full Spectrum Analysis and other pilot programs past and present— DIA can truly begin to claim that it is creating an innovative culture, a culture of improvement. Of course, work remains to be done and there are still several enduring barriers to creativity, collaboration, and change within DIA. But the Knowledge Lab's efforts have had, and continue to have, an impact on DIA's culture. It is creating Type 3 innovation at DIA.

LESSONS FOR DEVELOPING AN INNOVATIVE CULTURE

The Knowledge Lab's experience developing a DIA culture of innovation and improvement offers important lessons for other large organizations. The Knowledge Lab has identified several key elements for implementing Type 3 innovation:

- *Know Your Culture*. The first step toward creating a culture of innovation is understanding which elements of your organization's culture require change. What are the "organizational pathologies" that prevent bright ideas from taking root and flourishing on a sustained basis? The Knowledge Lab learned that understanding one's culture does not need an overly rigorous process – the organization should treat the process of changing the culture as a learning process. The Lab picked a few major themes and began working on them; new themes and issues arose over time. We learned that we should welcome and incorporate new discoveries as a part of the development process.

- *Innovation Is a Means, Not the End*. Large organizations cannot become "innovative" simply by pursuing the two most common types of innovations. But the two common types of innovations can be important tools in helping to create an innovative culture. Whether looking inside or outside of your organization, we deliberately picked bright ideas that target aspects of the culture which require change. But we found that the focus on the "how" of selecting and implementing the bright idea – was as important as the bright idea itself. We encouraged mechanisms throughout which employees could identify, advocate, and implement new ideas – and receive recognition for themselves. We created a "culture of innovation" on a small scale through innovation efforts and watched them spread to the organization at large.

- *Start Small, Think Big, and Keep It Real.* In a culture resistant to innovation – or one that does not see itself as "innovative" – it is important to start small. The "antibodies" against change in large organizations tend to be particularly powerful; avoid shocking the system with large-scale changes up front. The Knowledge Lab has learned to pick very specific aspects of the culture to change, beginning with limited pilots and test runs. We have popularized successes, using them to highlight the idea that "yes, change is possible here." As this belief has grown, DIA has been able to initiate larger and more ambitious projects, specifically pursuing projects that begin to make the workforce itself act as the agents of change. We have learned the importance of picking real issues to address – problems that will have a noticeable impact on key missions or functions.

- *Put People First.* One of the most important discoveries the Knowledge Lab made in its pursuit of innovation at DIA was that creating or incorporating bright ideas was far less important to achieving innovation than changing the attitudes and behaviors of the people in the organization. We worked very hard to develop a network of "change agents" – put motivated individuals into situations we created where they could explore, develop, or incorporate new ideas of their own while sheltered from the "antibodies" in the organization. We recognized and promoted these volunteer efforts to effect change. Network change-minded people together and watch the network grow.

- *Work at Multiple Levels*. In our experience, neither a completely top down nor bottom up approach to innovation is effective. Many a CEO or senior government executive has seen their great push for innovation effectively resisted by a reticent organization throughout their limited tenure; by the same token many creative and ambitious workers have seen their bright ideas squashed by an unbending organizational culture. The most effective change comes when all levels of the organization are engaged but you do not have to achieve multilateral engagement right at the beginning of your efforts. Engaging a diversity of stakeholders was evolutionary.

Senior leadership support was needed at the start to set the tone in support of change and innovation, recognize and reward innovative efforts, and to remove certain systemic barriers to change. Next, we pursued the workforce at the lowest level as the engine for change, proposing or adopting new ideas from inside and outside the organization and committing to ongoing improvement. Middle management—often the source of the most powerful antibodies against change—must be engaged to remove active resistance. For us this group was the most recent body to engage, ideally, to help recognize and reward creativity and innovation and create a positive

environment where innovation can flourish. Many Knowledge Lab pilots have brought together the various levels directly outside of the normal bureaucratic structure (connecting senior leaders to the "rank and file" workforce, for example) with dramatically positive results.

- ***Assign a Small Full-time Staff.*** Of course, the Knowledge Lab itself represents a key element for creating a culture of change within a large organization. A large organization seeking to create a culture of improvement may be well served by an office specifically devoted to cultural innovation. This organization should remain independent of – but interdependent with – the "line" units in the parent organization. It should also have a clear mandate and mission that focuses it not on generating bright ideas—new products or services for internal and external markets— but on creating change within the organization's culture. As the Knowledge Lab demonstrates, a small commitment of resources (only three full-time personnel) can pay a huge dividend in improving the culture of the organization.

CONCLUSION

The two most common types of innovation can create solutions to a wide range of problems – if the organization has a culture supportive of innovation. When the organization lacks a culture of innovation and when the problems are complex and enduring, the organization will be unable to accomplish any substantive change without using the third type of innovation, innovating culture. This third type of innovation is slow and complex, but it can produce the cultural environment needed for truly new behaviors and outcomes.

The Knowledge Lab's model of harnessing bright ideas from inside and outside the organization (Type 1 and 2 innovations) is working. It is systemically using these innovations to target specific aspects of the DIA culture (Type 3 innovation). DIA is demonstrating and reinforcing the belief that sustained change and improvement are possible. The effort is testimony that Type 3 innovations can be applied by other large, bureaucratic organizations to effect cultural change.

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Notes

[1] With its current widespread popularity, it is sometimes forgotten that the original Six Sigma methodology was developed by Bill Smith at Motorola in the 1980s. Six Sigma is a trademark of Motorola, Inc.

[2] "Outside the organization" is a relative and fluid term. For example, "outside" can refer to something from another company, or it could refer to an innovation brought into your office from another part of the parent organization. The point is that this type of innovation is not indigenous to the organization employing it.

[3] iSixSigma.com. "Six Sigma – What is Six Sigma?" (http://www.isixsigma.com/sixsigma/six_sigma.asp). Retrieved on June 15, 2008.

[4] General Electric. "What is Six Sigma?" http://www.ge.com/en/company/companyinfo/quality/whatis.htm. Retrieved on June 15, 2008.

[5] The organizational learning concepts of Chris Argyris and Daniel Schon, and Gregory Bateson are somewhat similar. Our Type 1 and Type 2 innovation are examples of Argyris' and Schon's single loop learning and Bateson's first order learning while our Type 3 innovation is similar to Argyris' and Schon's double loop learning and Bateson's second order learning.