

Achieving Clarity in a Constantly Changing Environment

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George Santayana famously stated, “Those who cannot remember the past are condemned to repeat it.” But what happens when our experiences become increasingly irrelevant? What happens when our environment changes so fast that everything we experience is unfamiliar? How can organizations learn lessons from past experiences? Some organizations still find themselves in the slowly varying environment of the past, but most see the pace of change accelerating so rapidly that it appears to be essentially constant. Organizational survival requires the methods they use to learn and impart operational knowledge to change as fast or faster. In this case study, Adrian Wolfberg, from the Defense Intelligence Agency, and Michael Stumborg of Toffler Associates discuss a pilot project (still ongoing) called Full Spectrum Analysis at the DIA’s Knowledge Lab as one method that is already showing significant results.

“There is wisdom in turning as often as possible from the familiar to the unfamiliar: It keeps the mind nimble, it kills prejudice, and it fosters humor.”

— George Santayana

Nowhere is rapid change more evident than in “knowledge competition” organizations like the Defense Intelligence Agency (DIA). Knowledge competition is the struggle to create knowledge capital, to steal it from adversaries, and frustrate their ability to create and use it. Moving from the Industrial to the Information Age, warfare is such that information supremacy increasingly trumps physical destruction. We now see military operations designed to gather information, not to take or destroy physical objectives.¹ Knowledge competition is central, and adversary capabilities now make the consequences of losing this competition extremely dire. Adversaries rarely present the same challenge twice, reducing our ability to institutionalize and act on lessons learned. The ongoing “arms race” of improvised explosive devices is one powerful and painful example.²

While the technical embodiments of our challenges change almost daily, some fundamentals remain inviolate. Warfare is a form of competition, and a single unifying theoretical construct thoroughly describes all competition, be it a clash between military forces, between rival corporations, or between sports teams. Each group operates using the Boyd OODA Loop (Observe, Orient, Decide, and Act),³ performing each step repeatedly as they compete to dominate their respective domains. Whoever executes this loop fastest is often victorious. Organizational learning enters primarily in Orientation so that fast learning of relevant operational knowledge engenders faster OODA Loop execution and victory. Given the OODA Loop’s cross-disciplinary applicability, the lessons of fast organizational learning in defense intelligence apply to many other organizations engaged in a Boyd-like knowledge competition.

If the key to victory is fast orientation, then the question becomes “How do we create an organization whose members learn and implement operational knowledge (i.e. orient themselves) faster than the members of adversary organizations?” One approach accelerates the pace of established learning methods – a difficult task for large hierarchical organizations. The established methods require sequential time-consuming steps: leaders identify problems requiring new skills, identify the required new skills, develop and fund the training program, train the trainers, conduct the training, and convince their skeptical members that these new skills will not become immediately obsolete.

Attributes versus Skills

There is a better way to accelerate the speed of orientation. Instead of teaching skills in this top-down approach, the organization can create a membership that takes the initiative to learn and implement operational knowledge from the bottom up. This reduces the complexity of organizational learning, compresses the OODA Loop, achieves competitive advantage, and more frequent victories. This is the philosophy behind *Full Spectrum Analysis* (FSA). Instead of imparting operational knowledge by teaching skills mandated from above, FSA identifies and imparts the attributes required of members who will proactively seek out new capabilities as they identify their own needs for them. FSA moves from skills to attributes, from organizational mandate to individual initiative, from reactive to proactive, and most importantly, from slow to fast.

“The FSA techniques revolutionized how quickly I can synthesize an analysis process to its essence and standardize it. The next person to do this particular work will not only learn my position and be productive in a fraction of the time it took me, but there will be no loss of continuity should I not be here to mentor.”

— FSA Alumnus

In 2003 the DIA determined eighteen workforce attributes in five categories required for successful mission execution in the Information Age environment.⁴

Several of these attributes, or hybrid combinations of them, also enable fast-learning organizations. First is *the ability to be a life-long learner*. Since rapid change renders both recently acquired and long-held knowledge and skills obsolete, the ability to just as quickly jettison them in favor of new knowledge and skills is prerequisite. To not refresh yourself is to become irrelevant. Tied to this attribute is *the ability to internalize new ways of learning, thinking, and problem solving*. It is not just about learning new material; but about learning to learn it in new ways – continuously.

“FSA changes the way you conceptualize and the way you behave. It prompts analysts to think about how intelligence problems are defined and the way you solve them. FSA encourages active information seeking, collaborative interaction, and reflection. It’s dynamic!”

— FSA Alumnus

Another attribute is *the ability to proactively seek out new information sources, analytical techniques, and enabling technologies*. Proactivity is the critical piece. One cannot simply

Chart title	
Cognitive Attributes	
Culturally Intuitive	Permeates "hearts and minds" of target; nuanced thinking
Identifies Patterns	Draws connections between nonlinear events and occurrences, considers low probability/high impact events
Global Thinker	Understands global operating environment; sees implications in diplomatic and economic contexts
Imagining	Formulates highly original concepts and perspectives
Multi-Disciplined	Brings a range of ideas to group discussions
Judgment Attributes	
Questions Assumptions	Guards against allowing "group think"
Calculated Risk Taking	Offers (inherently risky) predictive intelligence
Communication Attributes	
Interaction Oriented	Communicates "live" with customer; conversational manner
Networked	Seeks experts with diverse knowledge sources, keeps them at the ready.
Real-Time Collaboration	Adapts to new technologies and customer's desire for speed
Story Telling	Uses narratives to allow understanding of complexity
Scenario Writing	Develops scenarios based on facts and intuition
Presents Context	Provides on-going, additive perspective to customers
Technical Attributes	
Technology and Science	Understands something about both disciplines; aware of technological and social science issues, impacts, and solutions
Shapes Technology	Identifies, selects, and tailors technology solutions to needs
Role Attributes	
Anticipatory, Proactive	Seeks to understand and anticipate client needs
Customer Focused	Works to ensure data is useable for client success
Outcome Oriented	Seeks tangible mission outcomes

learn anew when told to learn. Survival in rapidly changing environments requires the inquisitiveness to be aware of new tools, and the individual initiative to go get them. Related to this attribute is the ability to quickly distill, assimilate and creatively synthesize new and seemingly unconnected information, techniques, and technologies into novel capabilities.

Several attributes address interactions with customers, teammates, adversaries, and yourself. The ability to continuously understand customer needs comes first. Many things change quickly. Customer needs may change faster than our ability to meet them – the ultimate metric of irrelevance. Today's intelligence issues require diverse teams that rapidly form, execute (on multiple issues in parallel), disband, and move on to the next issue. Thus, the ability to rapidly acclimate to, and maximize contributions from cognitively diverse teammates becomes paramount. Equally diverse are our knowledge competition adversaries. New and unfamiliar groups continually challenge us, as do familiar groups employing unfamiliar tactics or possessing unfamiliar perspectives. This requires the ability to see problems through the eyes of a con-



stantly shifting adversary. Since everyone approaches analysis through the lens of their own experience, the ability to rapidly identify, challenge, and discard the personal biases and prejudices of our teammates, our customers, and ourselves is essential.

Full Spectrum Analysis and the DIA Knowledge Lab

Noted deficiencies in analytical tradecraft⁵ point to the need for adopting different ways of learning, thinking, and problem solving. The DIA Knowledge Lab is one initiative to address this need. With support from successive agency leaders, and an intellectually risk-free environment where volunteers and FSA pilot participants are free to try new approaches, the Knowledge Lab is in some ways similar to “Skunkworks-like” activities. It is similar because it recognizes the need to change and innovate, and the general inability of large organizations to do so effectively, but dissimilar because its initiatives are not secret. The Knowledge Lab creates change at the DIA through the iterative application of well-advertised pilots that change

one or more dysfunctional behaviors. Effective Knowledge Lab pilots transition into the DIA organization, to effect large-scale change.

*FSA is one of those pilots.*⁶ It recognizes that competition is the basis of intelligence – competition to obtain the information needed to advance one’s aims while thwarting the adversary’s, and competition to protect and grow critical information. Preparing for its fourth iteration, FSA broadens the horizons of participants in three areas: the full spectrum of information sources, the full spectrum of technical and analytical tools, and the full spectrum of cognitive abilities and perspectives. This may seem a simple task, but significant cultural impediments, born of the need for secrecy within the intelligence community, auger against easy transition to an environment where intelligence professionals are comfortable reaching out to a wider spectrum of available capabilities, and are encouraged and rewarded for doing so. Despite the “A” in FSA, it is not only about analysis. It is about new ways of learning, thinking, and problem solving – attributes required of every DIA employee, thus the inclusion of non-analysts in the FSA pilots.

"The one-voice thing is very damaging to analysis - and one kind of cubicle, one kind of chair, one kind of anything... one thing doesn't fit everyone."

— FSA Alumnus

The literature regarding organizational transformation points to the key ingredients required for success, present in both public and private sector organizations.⁷ FSA addresses several of these, and when combined with other Knowledge Lab pilots, addresses others.

Transformation occurs at three levels based on the tenure of individuals within the organization: the entry/working level, the middle management level, and the leadership level. Rarely will top-down transformational efforts succeed. Even when leaders dictate change, powerful cultural inertia is difficult to overcome. Regular and fairly predictable leadership changes at public sector and military organizations exacerbate this problem further. Entrenched opponents of change just wait out the current leadership and its transformation initiatives.

Change is easiest at the entry/working level, where "the way we've always done it" is not ingrained. While slow change can occur from a bottom-up approach, urgent transformation focusing on bottom-up approaches tend to fail since enthusiastic change agents injected at the bottom of the power structure cannot flourish without "top cover" from a long-lived leadership. Max Planck, a founding father of quantum mechanics noted, "An important scientific innovation rarely makes its way by gradually winning over and converting its opponents. . . . What does happen is that its opponents gradually die out and that the growing generation is familiarized with the idea from the beginning." The difficulty in accelerating change then becomes what some have described as the "iron middle": middle managers who outlast the leadership, and use established incentive structures to quash change from below before it takes root.

"There is a willingness to change - and there are so many young people at the agency, things will change. It is inevitable."

— FSA Alumnus

"The first level supervisor like me doesn't know what he can do to push the envelope."

— Supervisor of an FSA Alumnus

FSA, coupled with an ongoing commitment of successive DIA leaders to the Knowledge Lab approach, and other Knowledge Lab initiatives, initiates change by seeding the organization with change agents from the bottom and sustained commitment from the leadership to influence the middle from both ends. A significant part of the FSA approach is the mutually supportive network created by the interaction of FSA alumni. FSA participants do not "graduate from a course of instruction and go back to work." They become part of a cadre expected to interact with, aid, and support, those that come to FSA after them, forming the core of a guiding coalition schooled in the attributes of FSA, gradually anchoring the new approach in the organizational culture. Done correctly, alumni become effective recruiters for successive iterations of the pilot and soften the barriers to implementation with each success achieved by practicing FSA in the work place.

"The benefit [of networking] comes from the connections you make between other people, you yourself are a conduit, not an endpoint. That is something honorable and inspiring because you are part of a larger whole, working to enrich others."

— FSA Alumnus

What Is FSA?

To describe FSA is to describe the behavior it produces. By definition, FSA is fungible, making it difficult to describe its alumni as people with a certain repertoire of skills. They are people with a certain repertoire of attributes. Each iteration of the FSA pilot seeks to impart these unchanging attributes, including the attributes of fast organizational learning. The specific information sources, analytical techniques, technology tools, and perspectives covered do change, so that if participants limit their experience strictly to acquiring exposure to these new capabilities, they find themselves with an almost immediately obsolete skill set. If they instead learn the attributes – the ability to seek out the new incarnations of these tools on their own as they evolve, and to share them, then they constantly refresh their skill set, keeping it up to date and relevant. An unwavering concept from one iteration of the pilot to the next is that knowledge competition is the key to victory, which requires participants to identify and assimilate new knowledge and knowledge manipulation tools and techniques faster than their adversaries.

The FSA pilots employ several feedback loops, and are thus able to adjust on the fly as new needs emerge and as the demographic composition of each FSA cohort (about twelve people for each pilot) changes. FSA facilitators constantly check with the participants to understand their expectations of the FSA experience, their assimilation of the targeted attributes, and to determine what is working, and what is not. They make real-time adjustments to address these changing needs and expectations. After pilot completion, facilitators and FSA participants (now alumni) identify, keep, and improve successful material and discard less successful material in favor of new approaches.

FSA is a journey, not a destination. It is not a "train the trainer" approach. It is not the imparting of skills mandated from above, but rather an awareness of, and inculcation of, the attributes required that enable organizational members to continually and proactively hunt for new capabilities on their own as their work environments shift and new capabilities and information sources become available. The ultimate goal is large-scale organizational behavior change, which begins on a small scale and expands informally through the alumni support networks.

"The more people you know, the better your analysis – networking is key. You can't come up with everything yourself, you ask who else to talk to. You come up with sources that you could never come up with yourself."

— FSA Alumnus

Recruitment criteria and conventional training prove generally inadequate at imparting these attributes. FSA selection criteria does screen for the likelihood that participants are amenable to adopting the attributes once exposed to them. Selection interviews look for courage, a commitment to collaboration, and a willingness to effectively and respectfully challenge authority. In *Five Minds for the Future*⁸ Howard Gardner contends that education

today focuses on the skills we need today, and not on the cognitive qualities (disciplined, synthesizing, creating, respectful and ethical) critical to success in tomorrow's environment of accelerating change and information overload. These ways of thinking must be cultivated, not trained to. He further contends that no one knows how to create an educational system to do this. A large part of facilitation in the FSA approach cultivates the attributes through coaching and mentoring: a practice that does not stop when the pilot concludes, and enlists the active assistance of the FSA alumni. FSA is a prototype of the cultivating educational system that Gardner claims is missing.

How Is FSA Conducted?

FSA participants meet formally as a group one day weekly for twelve weeks. Interleaved throughout is a "Capstone Question" – a real-world intelligence question of interest to the DIA leadership. The need to apply FSA techniques to the Capstone Question, and to present their findings to the DIA leadership, create frequent interaction among participants beyond regularly scheduled sessions. Most sessions are a half-day led by the facilitators, followed by a half-day working session where the participants lead and address the Capstone Question.

Each session has a unifying theme that ties back to at least one FSA attribute. The transmit-receive method of imparting the attributes is avoided scrupulously. Starting with learning objectives for each session that provide participants with insights about their craft or themselves, the facilitators design material using a theory-to-practical-application dyadic approach. Theory presentation occurs through an interactive exercise, followed by opportunities to put the theory into practice, often through a role-playing exercise using an historical or contemporary intelligence problem.

For example, one theme is "biased perspectives," at the individual, team, customer, and organizational levels. Participants learn that they carry into the analytical process with them, everything that ever happened to them to shape their world-view, and that that can lead to erroneous conclusions if it goes unrecognized. By the end of the activities, participants understand and recognize their own internal biases, and those of their teammates, their customers, and their adversaries. Furthermore, they are aware of how understanding these biases help them to win the knowledge competition by dampening their negative effects on their side, and exploiting them in their adversaries.

The day has four major exercises: *Implicit Associations*, *Operation Barbarossa*, *Winning the Battle of Algiers*, and *Operation Anaconda*. In *Implicit Associations*,⁹ a fill-in-the-blank exercise drives them to the "wrong" answer by faulty association. They quickly fill in twenty blanks with historical information. The exercise begins:

The tragic events of _____ (date) came as a great surprise to the world, the American public, and to _____ (political party name) President _____ (name) . . .

The opening phrase drives about 90% of participants to facts associated with the 9/11 attacks on America, but they are equally germane to the December 7, 1941 Pearl Harbor attack. After showing the "correct" answers, the facilitator discusses how phrases such as "The tragic events of" created an implicit association in their mind that led to 9/11.

Participants discover that they must be vigilant against implicit associations and biases in themselves and everyone they work for, with, or against.

Operation Barbarossa, based on the German invasion of the Soviet Union in 1942, provides a first opportunity to witness and address such biases in practice. Many analysts have an inherent bias toward the logical – toward the facts of the case. Joseph Stalin was anything but logical. Stalin's personal paranoia and rabid hatred of Winston Churchill shaped his actions and interpretation of the facts, driving him to trust Adolph Hitler.¹⁰

Participants receive an intelligence dossier with all the facts Stalin possessed on the eve of the invasion. The facilitators use a list of factors shaping Stalin's worldview and instruct participants to read the dossier and play the role of junior Soviet intelligence analysts assigned the unenviable task of convincing Comrade Stalin that the Germans are coming. The analysts construct and present rock-solid fact-based assessments of the situation. The facilitators, role-playing Stalin, respond irrationally and dismiss the facts as English deceit, and infer a date with the firing squad if this line of reasoning persists – just as Stalin did. Analyst and customer (Stalin) talk past each other. Logic does not prevail. Stalin's bias prevents him from seeing the truth. This re-enforces the notion that biases exist within the minds of the people who receive their analysis results, and that they must be prepared to recognize and deal with that. The exercise concludes with some advice on how to recognize and deal with difficult people.

Following this exercise is a working lunch with a discussion on war fighter perspectives. One of three similar sessions throughout the pilot, a tactical-level military officer recently returned from a war zone gives participants his perspective on intelligence needs. Participants gain a better understanding of this key intelligence customer segment. The other two intelligence customer groups that provide their perspectives on later dates include a Department of Defense policy maker, and a commercial CEO.

Participants then shift to *Winning the Battle of Algiers*, another case study, this time involving the 1950s uprising against the French in Algeria. They gain insight into how cultural baggage and different perspectives influence actions (and reactions) by role-playing the French military, the Algerian insurgents, and the Algerian populace. After watching the Gillo Pontecorvo movie *The Battle of Algiers* (before the session), the French and Insurgent role players develop action plans that will serve their interests and win the hearts and minds of the Algerian people. The Algerian people role-players vote on who will have their allegiance (and why) after hearing the planned moves and counter-moves. French and Insurgent role players trade the advantage of briefing first in successive rounds of the scenario. Participants discover that even with perfect hindsight (from watching the Pontecorvo docudrama) it is difficult to understand what moves adversaries will make without a clear understanding of their motivations and perspectives.

The difficulty ratchets up further during the Operation Anaconda role-playing exercise. Foreshadowed by the lunchtime discussion, and set in modern day Iraq, participants no longer have perfect hindsight, and there are now more than just two sides in the competition, with the U.S. military, local insurgents, foreign fighters, pro- and anti-American local sheiks, and individual agents-provocateur who appear to be part of a group, but really have their own hidden agendas and rivalries with other groups. By now, participants have become keen to discover the true biases, perspectives, and motivations of the competing actors as they seek to achieve their strategic objectives.

The day ends, as each session does, with a recap of the learning objectives, a discussion of how each exercise re-enforced those objectives, and thoughts from the FSA participants on



how they might apply what they discovered in their work, and on the Capstone Question.

The same theory-to-practical-application dyadic approach achieves the following learning objectives, designed to impart required attributes:

Fostering team dynamics and trust, and “getting the question right.” Fast work environments require working on multiple teams at once, and on teams that change composition with every new problem, making teamwork attributes critical. Dealing with diverse customers with diverse needs and sometimes-limited understanding of the team’s capabilities makes the ability to continuously understand true customer needs another critical attribute.

Developing proactive and inquisitive behavior patterns, building testable hypotheses and challenging assumptions from within. Intelligence analysis is ultimately about applying all available and unavailable-but-attainable data to a hypothesis that answers the customer’s question. Viewing this application through lenses undistorted by biased perspectives and assumptions is critical.

Getting smart fast. A major part of FSA is tapping the full spectrum of available data – often referred to within the intelligence community as all-source analysis. All source analysis is a necessary, but not sufficient component of FSA. Participants learn how to reach out beyond the traditional intelligence community information sources, and beyond most of their comfort zones by employing open-source research (information available to the general public, as opposed to secret information available only to the intelligence), knowledge networking, and interviewing.

Analysis and synthesis. FSA, it is not a course about intelligence analysis, or exclusively for analysts. It is a new way of learning, thinking, and problem solving. (Wolfberg, 2006) Analytical skills are just one part of FSA. The emphasis here is on the attribute of proactively hunting

out non-traditional and emerging capabilities – in this case analytical tools and techniques – from disparate sources.

Making and breaking hypotheses. A critical shortcoming of analytical tradecraft is the proclivity to cling to a hypothesis, once formed, sometimes in spite of emerging evidence that refutes it. (National, 2004) Because of the critical importance of this skill, not only are the methodologies of hypothesis testing covered, but also the personal attributes of someone willing to revisit and challenge their own cherished hypotheses.

The "Logic of the Model." What are those few key and relatively "static" dynamics that drive decision makers? Participants learn how to get inside the head of their adversaries, and even their customers. Participants revisit Joseph Stalin and try to discern his logic of the model and how they failed to sway him before because they could not discern the dynamics that drove his decision-making process.

Delivering analytical results by compelling storytelling. Attempting to drive intelligence analysis away from a dry and uninspiring regurgitation of collected facts, the "so what" module ties analytical results back to getting the question right. Participants learn how to develop analysis products their customers truly want and need, with the capability of creating actionable recommendations. The "storytelling" module emphasizes this millennia-old form of human interaction and how to harness its power to deliver memorable analysis results.

Being a proactive hunter instead of a reactive gatherer of technology tools. Participants visit a technology developer charged with adopting and adapting analytical tools from outside the intelligence community for use on the inside. Titled "Out of Left Field," this session drives home the attribute of maintaining a wide aperture for new technology tools, similar to the attribute that drives them to seek information from all sources.

"I think we need to focus more on liberating the analysts. Letting them do analysis. I think sometimes we are too prescriptive on what we require from them. It doesn't allow them to be challenged well, and that can hurt morale and turnover."

— Supervisor of FSA Alumnus

"The best supervisors really set guidelines and expectations up front and then let me go. Give me free reign. Then you don't bump into obstacles. Freedom within bounds is liberating and you can get more creativity with it."

— FSA Alumnus

Conclusion – Where Do We Go From Here?

One lesson common to transformation and innovation is the difficulty of re-integrating people with new operational skills back into an organization that is not yet accepting of these new, and often disruptive, techniques. It is pointless to impart new operational knowledge to junior employees and expect them to collectively push on the sluggish rudder of the organization, hoping to change its direction without experiencing resistance. Two complementary initiatives under development create for FSA alumni an environment where they can flourish and succeed.

Full Spectrum Leadership (FSL) addresses the "iron middle." Instead of just pressuring the middle management level with leadership directives from above, and enthusiastic FSA alumni

from below, FSL shapes the middle managers by educating them on the advantages of FSA to the organization. It shows how managers can best employ and utilize the FSA alumni to achieve personal success and contribute to organizational success. This process begins even before the participants “return home,” when FSA facilitators visit each participant’s supervisor to explain and support the new approaches.

Full Spectrum Remote (FSR) recognizes that the success of FSA depends on a very solid foundation of FSA alumni to form the mutually supporting change-agent network. DIA is a worldwide organization whose members have a diverse set of roles, responsibilities, and availabilities. Many in the workforce cannot accommodate a once-weekly twelve-week commitment. FSR is reworking the elements of FSA to deliver it to the unique needs of this diverse and geographically dispersed workforce.

Expansion Beyond the DIA Knowledge Lab – FSA has already grown beyond the DIA, with participants coming from several intelligence agencies for each pilot conducted thus far. The Knowledge Lab leads the charge to introduce new ways of thinking at DIA and spreads their lessons-learned throughout the intelligence community.

Epilogue

Everyone is an analyst. You do not have to have that word in your job title or description for that to be true. This is one reason why FSA invites participants from the entire DIA work force, not just the analyst core. Recent FSA participants include travel office and budget shop personnel. The lessons of FSA are applicable not only beyond DIA into the rest of the intelligence community, but beyond the intelligence community as well into any field where knowledge competition is the key to success.



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