INSIDE ACTIVITY BASED INTELLIGENCE

UNRAVELING COMPLEX PROBLEMS

BAE SYSTEMS

No mission is more critical than ensuring our national security and the safety of our warfighters. That's why BAE Systems Intelligence Analysts and Engineers developed Activity Based Intelligence (ABI). See how our innovative ABI solution and expertise is changing how the Intelligence Community is reviewing, processing and analyzing critical intelligence data.

Clear, actionable intelligence is vital to the planning and execution of any military, peacekeeping or disaster-relief operation. The success of these missions is largely dependent upon timely intelligence, fused from multiple data sources. However, the dynamic proliferation of new intelligence sources such as ground, airborne and space-based electro-optical, infrared and hyper-spectral sensors, has made it impossible to track and identify important activities solely through human analytical processes. There is simply too much big data being collected for human analysts to sort through it all – especially when time is of the essence.

A new computer-assisted problem solving methodology, known as ABI, has emerged to improve the efficiency and timeliness of intelligence analysis to better understand and take action upon historical, current and anticipated activities involving national or global security.

"I don't want our analysts to spend time searching for information," said National Geospatial-Intelligence Director, Letitia Long in a July 2013 interview with WashingtonExec. "I want to take advantage of computers and technology to serve up the information that we need to be focused on."

The ABI intelligence tradecraft organizes and collates large volumes of collected data, to make it easier for analysts to identify potential adversaries and their targets, by distinguishing relevant patterns and recognize suspicious behaviors before a possible threat may be imminent.

Throughout September and October, we will be profiling some of the many engineering and intelligence analysis experts behind our ABI solution to explain how this innovative methodology is impacting intelligence analysis and developing a "new breed" of analyst.

SPOTLIGHT ON:

DR. ROBERT TOMES

DIRECTOR OF TRADECRAFT ADVANCEMENT

How is ABI revolutionizing intelligence analysis?

ABI is changing intelligence analysis by providing examples where open-ended thinking and innovation at the individual analyst level yield intelligence and operational successes that traditional approaches are ill-suited to provide. This does not mean that every intelligence office or issue can be improved by applying ABI techniques or thinking. One of the most important ways that ABI changes the community is by expanding and deepening the range of methods and approaches available to analysts. ABI successes also provide examples where long-term returns on investment are realized by integrating and adapting ABI techniques in a leadership environment that understands that innovation must be integrated, adopted, and adapted against mission-focused challenges with appropriate and relevant access to data (existing and new).

What government customers or private industries could benefit most from integrating ABI, and why?

ABI has the potential to enhance any analytic activity. It was built to unravel the complex problem.

How do you envision ABI being used in ten years?

The next steps for ABI analytic methods lie in the realm of advanced visualization techniques, automation of collection, advanced modeling and simulation. These capabilities will allow analysts to better test hypotheses, and enable them to track (over time) their unconscious biases and blind spots.

SPOTLIGHT ON:

TIM ELLIS

CHIEF ENGINEER

Activity Based Intelligence has been defined and sponsored by the U.S. Office of the Director for National Intelligence and has been embraced by the major U.S. intelligence agencies.

Next week, our experts will share their views on the future of ABI. We will also explore how ABI can be applied to a broad range of problems outside the Intelligence Community.

How is ABI revolutionizing intelligence analysis?

Both by design and by necessity, ABI must bring about the transition of analytics from manually wading thru the data, to working at the object level. The amount of data is growing exponentially, but the number of objects ("things") that we actually care about is relatively fixed – though admittedly a large number. This is the fundamental tenet that we are exploiting with ABI. By leveraging the ABI systems to perform the necessary raw data conditioning and initial organization into the growing ABI object knowledge base, the analyst can focus on the objects and events they care about, whether known or unknown. They can identify unknown entities, assess the existence of relationships among them, and provide the cognitive additions to the ABI knowledge base that only trained analysts can do. These analysts can do this in full and real-time collaboration with the entire analytic community, if they so desire. This means that the analysts "ask" questions in real world terms ("what has organization X been up to in area Y in the last Z days?"), and the ABI system will understand the context, manage ALL the relevant underlying data, and provide the analyst with the most complete picture of information available at that time across all available sources of intelligence. When necessary of course, the details of the underlying data can always be accessed, but the volume of raw data involved is drastically reduced from the manual search methodologies employed in the past.

What government customers or private industries could benefit most from integrating ABI, and why?

Because the fundamental principle of ABI is in understanding the human interactions of the world, or specific pieces of it, it can and has been applied to a multitude of domains. These include law enforcement investigations, civil security related to public events (games, political events, etc.), and safeguarding public infrastructures and systems (water, electric, food, etc.). Additionally, many of these same machine based understandings of consumers and social media participants have already been exploited by commercial companies from Google and Amazon to Facebook and Twitter. In many ways it is these commercial internet scale operations that have driven the recent advancements in the algorithms and tools to tackle and exploit the big data phenomenon.

How do you envision ABI being used in ten years?

Driving both by the cost and pragmatics of an ever increasing data problem, as well as the continued advancement and value of big data analytics, ABI, or its incarnation in ten years will be common and mainstream. The analysts in ten years simply won't conceive of manually wading through the data any more than we would today consider hand writing and quick note to a colleague and mailing it via the postal system. It would be inefficient, time consuming, and likely result in lost opportunity to achieve a desired result. Based on real-world objects and events, analysts will spend their time focused on discovering and understanding the people, places, and events that are unfolding on an hourly basis around the world. They will be able to leverage an understanding of the patterns of activities of these objects and anticipate most likely next events, thereby heading off bad events, and better understanding the relevance and impacts of all other events.