Sentient Program White Paper

Background

The Intelligence Community faces an increasingly complex environment, which significantly impacts our future intelligence dominance and relevance. Adversaries increasingly utilize a wide variety of technologies and techniques that make collecting intelligence difficult, and the proliferation of inexpensive technologies has provided even non-state actors with significant infrastructure for sophisticated communications and operations

(b)(3)

Sentient is Advanced Systems and Technology's (AS&T) answer to this required paradigm shift, and consists of both a long term vision as well as a near term prototyping program that demonstrates key concepts of the vision.

Sentient Program Vision

The Sentient vision represents a fully integrated intelligence approach consisting of three fundamentals: problem-centric intelligence; multi-INT end-to-end; and trusted machine automation. This vision replaces the tasking-centered methodology ingrained in the current linear TCPED cycle with a sophisticated, non-linear problem centric approach. And while we must maintain deep technical, domain, regional expertise in the individual INT's, we must also be fully integrated at the intelligence problem level. Further, to be optimally effective, this intelligence problem centric approach must extend across all IC systems, processes, and INTs – multi-INT. Furthermore, given the enormous volumes of data, trusted machine automation is an imperative.

- Optimized, problem centric tasking across the enterprise (b)(1)
- Multi-INT from end-to-end (b)(3)
- Trusted machine automation in an adaptable, learning system
- Mission-Aware with the ability to apply priorities, historical knowledge, signatures, and patterns
- Self-Aware of available system assets and status, system performance, and capabilities
- Analyst-driven machine automation to enable autonomous tasking and automated collection processing
- Automated, tailored analyst and operator tip and cue environment

(b)(3)
(b)(1)

Sentient Program Implementation

AS&T is currently funding a Sentient program that is a research and development (R&D) environment for the demonstration of advanced technologies and techniques ultimately necessary to implement the complete Sentient vision.

Sentient Initiative Objectives

- Demonstrate automatic tasking and collection capability
- Demonstrate and apply knowledge based development and machine learning to the collection architecture
    - Provide knowledge based situational awareness to inform collection assets
    - Catalog normal patterns and detect anomalous behaviors
- Demonstrate multi-INT capabilities
    - Through integration of multiple sensor phenomenologies
    - Across multiple security levels