

Topic: N141-037

Applied Technical Systems, Inc.

Scoring Analysis via Data Integration and Information Extraction (SADIIE)

Valuable life-cycle management data derived from unstructured data formats (Microsoft® Word, Microsoft® Excel, etc.) is underutilized in the current acquisition decision process. The Scoring Analysis via Data Integration and Information Extraction (SADIIE) capability implements an information extraction system that leverages web-based software and machine learning to identify key system metrics and threshold values from unstructured and structured information sources. SADIIE provides the capability to synchronize unstructured and structured data, to drive data analytics that enable collaboration and real-time decision support through flexible visualization and quantifiable assessment. Applied Technical Systems (ATS) implements simple, user-centric solutions to simplify and rationalize complex data problems. Under ATS's Agile development methodologies, each SADIIE function is prototyped, verified, and improved. ATS's target architecture establishes a robust data driven decision support analytic framework suitable for employment by the naval weapons systems acquisition and program management communities.

Technology Category Alignment:

Electronic Warfare (EW)

Engineered Resilient Systems (ERS)

Human Systems

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SYSCOM: NAVSEA

Contract: N00024-16-C-4041

 Corporate Brochure: https://navystp.com/vtm/open_file?type=brochure&id=N00024-16-C-4041

Department of the Navy SBIR/STTR Transition Program

Statement A: Approved for Release. Distribution is unlimited.
NAVSEA #2016-0615

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WHO

SYSCOM: NAVSEA

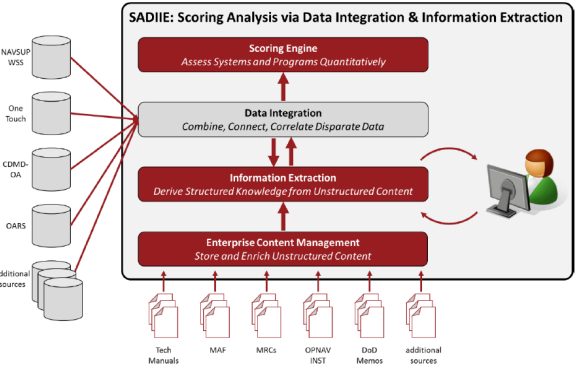
Sponsoring Program: PEO IWS

Transition Target: PEO IWS 2
Above Water Sensors Directorate
Surface Electronic Warfare
Improvement Program (SEWIP)
Block 2/3

TPOC:
(812)854-8325

Other transition opportunities:
Large-scale acquisition Department of Defense programs that can benefit from having the ability to extract quantifiable data from free-text to support proposal evaluation. Organizations that routinely review large volumes of legal documentation via labor-intensive processes to monitor adherence and ensure compliance against strict statutory regulations. State, local, and federal agencies looking for advanced techniques to support efficient identification of requirements from textual regulations, and the capability to score themselves, in a semi-automated fashion, against compliance and to detect potential compliance violations early, within a framework that has the potential to reduce the burden of updating compliance plans as regulations change.

Items in bold (red) indicate new innovations. The data integration component leverages existing technologies developed as part of previous ATS efforts.



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WHAT

Operational Need and Improvement: Today's Navy faces budgetary constraints with directives to control costs across the entire life cycle of the systems it fields, while also requiring that those systems be able to support a diverse and ever-changing set of missions across the globe. Optimizing costs over life cycles that last decades requires a holistic approach that incentivizes Original Equipment Manufacturers (OEM) and Program Managers to develop, field, and support sustainable systems. As part of the acquisition process, detailed design documents, physical models, requirements specifications, functional descriptions, and reliability and sparing models are generated and used to project forward the total cost of ownership from inception to disposal. These artifacts are scrutinized throughout the initial design phase, but are rarely revisited once a system has been fielded. Evaluating whether systems are meeting their goals, and whether plans to sustain them are achievable requires bringing together data that shows inefficiencies and failures in equipment, supply chain, and administrative processes. This data is often distributed across a number of disconnected silos. The Navy requires the ability to integrate these disparate data sets, visualize and explore observed inefficiencies and failures, and identify prescriptive actions for improvement.

Specifications Required: To surface actionable and quantifiable data from the text-heavy documents currently used by program management office staff. To expose data in a machine-readable format that remains a persistent anchor to the text from which it came. To enable staff to make faster and better informed decisions based on data in light of their objectives.

Technology Developed: An information extraction system to identify key system metrics, threshold values, and observations from text sources. A user workflow and integration with existing data sources. A scoring module that allows for quantitative assessment of lifecycle data.

Warfighter Value: The technical objectives of the research, design, and implementation efforts and the vision of the SADIIE architecture provides a foundation for a broader toolset that empowers program managers, maintenance staff, and planners with the ability to maintain systems with high operational availability, and to simultaneously optimize costs.

WHEN

Contract Number: N00024-16-C-4041 **Ending on:** February 28, 2018

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Prototype 3	Med	Entity extraction through scoring capability for one metric.	6	September 2016
Prototype 4	Med	Initial workflow established for integration into Crane.	6	November 2016
Prototype 5	Med	Further entities developed from user training.	7	January 2017

HOW

Projected Business Model: ATS's commercialization strategy employs two avenues to bring the SADIIE technology to market. In the first avenue, ATS leverages existing experience in web-based Software-as-a-Service (SaaS) applications to deliver a capability that could support various markets with information extraction and scoring requirements. In the second avenue, ATS offers its capability as an add-on to existing products.

Company Objectives: For over 30 years, ATS has worked to simplify and rationalize complex data problems. While the tools and technology employed have changed over time, ATS's commitment to providing customers advanced data analytic services has remained steadfast. ATS delivers simple, yet intelligent solutions that combine modern technologies, process improvements, and the right personnel to help businesses thrive. ATS's team of passionate, curious, and talented people work with each customer one-on-one to tailor the best possible information solution.

Potential Commercial Applications: Organizations that need to demonstrate compliance with strict regulatory requirements can employ SADIIE's technology to reduce the burden of updating compliance plans when regulations change.

Contracting companies may have dedicated proposal managers or dedicated bid & proposal staff to ensure submitted proposals comply with formatting, content, and semantic requirements. ATS anticipates that the SADIIE approach could be adapted to facilitate the generation of compliance matrices and facilitate the scoring of the proposal text against requirements.

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