

# Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.

ONR Approval #43-3252-17

Topic # N132-128

Automated Concept Map Elicitation (ACME)

DECISIVE ANALYTICS Corporation

## WHO

**SYSCOM:** ONR

**Sponsoring Program:**  
Expeditionary Maneuver Warfare  
and Combating Terrorism  
Department - ISR Programs

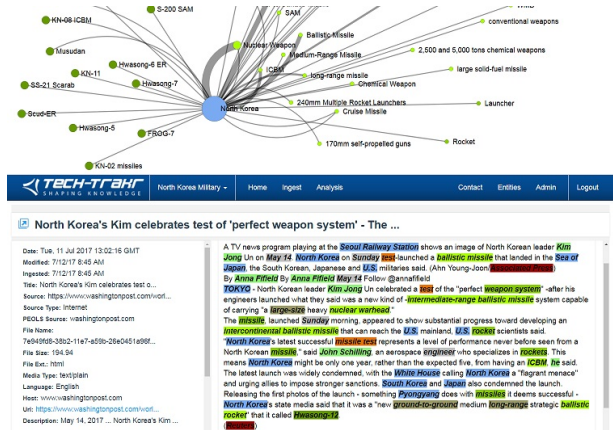
**Transition Target:** Distributed  
Common Ground System-Navy  
(DCGS-N)

**TPOC:**

Mr. Martin Kruger  
martin.kruger1@navy.mil

**Other transition opportunities:**  
DCGS-A, AF DCGS, Securities and  
Exchange Commission, Special  
Operations Command, FBI

**Notes:** Image is screenshot from  
the developed technology. Visit this  
capability at the [TechTrakr  
Operational Website](#)



Copyright 2017 Decisive Analytics Corporation (DAC)

## WHAT

**Operational Need and Improvement:** It is difficult if not impossible for Warfighters to make sense out of today's ever-growing sea of intelligence data. To have a crisp understanding of all of this data, Warfighters must often go through tedious rounds of analysis to identify the organizations, products, people, and other entities identified in the data. Furthermore, this data comes from multiple disparate data sources. Intelligence sources, open source data, and other public/private data stores each contribute information to the overall intelligence picture. Each data source provides different types of information, in different formats, with varying levels of quality and detail. The automation of the "grunt work" of data acquisition, manual extraction of the relevant entities, and normalization and structuring of the relevant data enables the Warfighter to better put their cognitive skills towards the critical analytical problems.

**Specifications Required:** The objective of this topic is to develop a capability to propose concept maps from very large unstructured data stores. To meet this objective, the need exists to construct visual graphs, reorganize nodes/edges to increase readability, remove irrelevant data and prioritize content with respect to user needs.

**Technology Developed:** The capability developed is called TechTrakr, which gathers domain-relevant information, both from internal repositories and from open sources, and normalizes/organizes it based on content extraction. TechTrakr accelerates the data retrieval and analysis cycle, allowing analysts to focus on understanding the web of relationships hidden within data. TechTrakr's visualizations allow end users to explore and understand the complex web of entities, relationships, and activities that exist unstructured data.

**Warfighter Value:** The TechTrakr capability allows Warfighters to quickly and easily understand large unstructured repositories of data faster and more accurately than ever before.

## WHEN

**Contract Number:** N00014-15-C-0112 **Ending on:** April 5, 2018

| Milestone   | Risk Level | Measure of Success  | Ending TRL | Date           |
|---|------------|---|------------|----------------|
| Automated generation of concept maps from raw, structured and unstructured data sources | Low        | Demonstrate extraction of key information from structured and unstructured data | 4          | October 2015   |
| Scalability testing for large-scale data sources  | Low        | Support analysis of large scale data sources                                    | 5          | December 2015  |
| Testing and Deployment within PEO Land Systems Architecture                             | Low        | Deploy within the PEO Land Systems Architecture                                 | 6          | March 2016     |
| Operational deployment at PEO Land Systems  | Low        | Complete accreditation requirements   | 9          | September 2016 |
| Rapid expansion of capabilities to new domains  | Med        | Easily expand to new knowledge domains  | 9          | April 2018     |

## HOW

**Projected Business Model:** The business model for this effort is a mix of license fees and custom development for various user communities. Through our experience, we know that this capability requires some custom development for different domains to produce effective results.

**Company Objectives:** Below is a list of transition partners that can benefit from this technology.

DCGS-N / DCGS-A / AF DCGS: Entity network graphs are a powerful and flexible tool to help analysts understand the human terrain of a region or organization of interest. DAC's automated capability results in a large reduction in the labor required to perform network analysis. Inclusion these developed methods of processing large scale data repositories of documents will be important to these customers.

The Intelligence Community including the CIA, DIA, NSA, NASIC, MSIC, NGA, and others have requirements for analysts to automatically make senses out of large amounts of unstructured text data. The TechTrakr relationship extraction capability is a analytic that identifies relevant entities and their relationships based on textual mentions enabling analysts to do just that.

**Potential Commercial Applications:** Financial Analysts: Investment management and other financial market analysts have a need to analyze complex data sets about companies and industries. Many of these problems mimic the problems facing intelligence analysts: analysis must draw from huge amounts of data, a variety of expertise is required, and understanding and managing the data is crucial to success. Through a self-funded marketing effort, DAC has past performance and relationships with banks, hedge funds, and investment advisers in the financial markets and has validated this requirement.

**Contact:** James J. Nolan, Ph.D., Vice President, Analytic Technologies  
jim.nolan@dac.us 703-414-5002