

## Analyst-driven Knowledge Enhancement & Analysis (AKEA)



Visually connecting knowledge gathered from many sources allows for an enhanced view of relationships and hypotheses. Analyst-driven Knowledge Enhancement and Analysis (AKEA) is a next-generation knowledge visualization and analysis tool, encapsulating powerful semantic technologies in an intuitive environment. Developed by the Pacific Northwest National Laboratory (PNNL), AKEA enables users to analyze available information, develop hypotheses, and evaluate scenarios more quickly and easily with advanced visualization capabilities.

### CHALLENGE

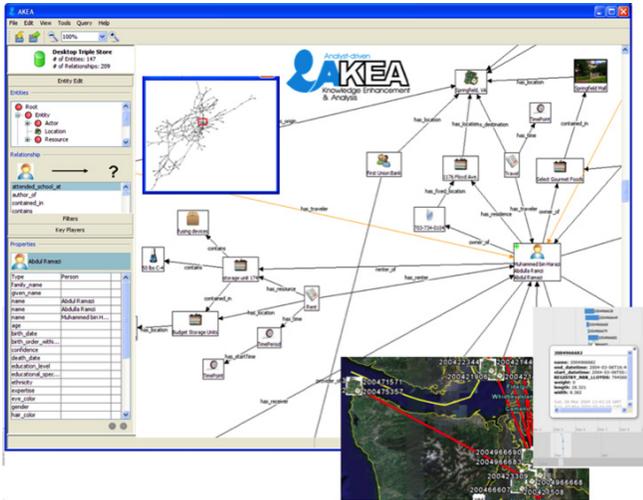
Gaining clarity and extracting value from big data is becoming increasingly difficult due to the massive amounts of information being collected. As such, the ability to discover networks, patterns, and trends across

increasing volumes of structured and unstructured data is essential for the timely analysis and communication of crucial intelligence.

AKEA addresses these challenges by productively using knowledge extracted from text documents and structured data sources including the important entities such as person, place, object, and relationship. The software assists analysts in constructing and querying link analysis graphs from the extracted information to support hypotheses of links among these entities.

### SOLUTION

The AKEA technology facilitates the analysis process from beginning to end. Its capabilities enable users to import and collect data from disparate sources such as text documents, databases, and knowledgeable experts,



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display and enhance the data, and use advanced visualization tools to perform analysis that would otherwise be difficult to see.

AKEA users have the ability to create networks, timelines, and spatial mappings of relationships and events that are supported with knowledge representation and linked to appropriate document sources. Users can exploit and manage the semantic representations with alternative and coordinated visualizations as well as visualization of the ontology. The representations can also be queried to find additional patterns of analytic interest.

## IMPACT

AKEA has been demonstrated in several organizations across different U.S. government agencies. In these demonstrations, analysts used AKEA to fuse structured and unstructured data in analysis domains ranging from tracking foreign ownership of shipping vessels, to monitoring cellular technology innovation reported in news articles, to assessing terrorist network activities.

In addition, internal investments have focused on applying AKEA's capabilities in support of threat anticipation and business intelligence activities.

AKEA is also one of five components included in PNNL's Fused Analytic Desktop Environment (FADE) which provides analysts in information-driven fields with a range of information analysis technologies—capable of handling ad hoc data sources—integrated into a single, easy-to-use system. FADE provides a single environment of integrated tools, expanding the realm of analytical possibilities discoverable by users.

## ABOUT PNNL

Interdisciplinary teams at Pacific Northwest National Laboratory address many of America's most pressing issues in energy, the environment and national security through advances in basic and applied science. PNNL employs 4,300 staff, has an annual budget of nearly \$1 billion, and has been managed for the U.S. Department of Energy by Ohio-based Battelle since the laboratory's inception in 1965.

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