INDASEA WHITE PAPER
March 2005

Status of Current Project
Cultural Simulation Model (CSM) Phase III software prototype development for DTRA is near completion.

Relevant Background Information
The inventors' background is in culture, art and visualization techniques operating in novel compute environments.

Need for New Tools
There are huge discrepancies in the stated intent of US international action and the local perception of those same actions. This creates image and communication difficulties that can be aided by technology once the human behavior modeling threshold is crossed. Threat assessment, insurgency mitigation and influence factoring are difficult if not impossible without the ability to understand events in a cultural context.

Premise
The premise for the system is that increased understanding can be obtained by viewing a situation from multiple, culturally specific, empathetic points of view.

Structurally Sound Method
Looking in an overly focused manner for a direct cause and effect makes social influence detection impossible. Humans are able to function without knowing exactly what they are doing by using abstract and conceptual pattern matching in context. The Cultural Simulation Model (CSM) uses similar, human-oriented methods. Data gaps can be filled and patterns discerned by looking at active situations in a more archetypal manner. This requires large volumes of detailed associations over long periods of time properly presented to human operators.

Description of the Effort
The CSM is an ambitious effort designed to restructure information at a fundamental level. A complete system utilizes the full range and scales of human behavior as expressed in the perception-oriented ontology of the CSM, from small to large: awareness, emotion, action, memory, context, individuals, groups, cultures, institutions, beliefs, and the physical world.

Speaking in a Conceptual Language
Languages and data inputs are deconstructed into a data sea of bits on a global scale. A perception based conceptual language is then used to create higher order structures like Actors, that have Contextual windows to look into a Situation. In this human-oriented Cultural Construct, actual Behavior is extracted from real world data sources that are being constantly refreshed. The deconstructed data elements are then reassembled as reflected in real world behavior in order to discern individual instantiations of syntax and semantic intent, on a per Actor basis, within a culturally specific Context. The end user engages the system using intuitive navigation aided by a menu of analytical tools and visualization methods to get complex cultural assessment in both real time and over long periods of history. The evolution of trends and interactions among Actors becomes apparent.

Non-trivial Effort
The Cultural Simulation Model rests on a foundation of IndaSea's Logic Web™ technology. The Logic Web ™ uses autonomous data handlers and provides the foundation environment to emerge non-hierarchical logic paths from the data sea. The inventors have taken 10 years to fundamentally restructure software programming to mimic human cognition based on sensory input, primarily vision and sound. Even in this prototype version that accepts text only, the effect of using the Logic Web ™ software environment is significant.

Cost and Operational Advantage
Substantial cost advantages using an efficient software development process have been obtained. A novel GRID computing environment has been prototyped. The novel compute infrastructure, working with unitized data handling methods, brings the data and the software process closer together in a way that crosses the critical threshold of complexity required to model human behavior.

Diverse Application of the Cultural Simulation Model Possible
In its most optimistic implementation, the application will serve as a global knowledge system, providing deep empathetic views of the world with the capability to avoid conflict all together. Applications for the system are wide ranging; the following are examples:
 • Policy moves at the diplomatic level can be coordinated with multiple campaigns in the field with near real time MOE (Method of Evaluation).
 • Text streams between negotiating parties can use a Cultural Construct to discern peak receptivity to compromise, with indicators of probable success emailed directly to the table.
 • Training support for cultural indoctrination before engagement, and continued support during foreign assignment.

Summary
Using the CSM, likely scenarios can be anticipated enabling application of the tools to fighting terrorism and insurgency. The effort is designed to digest large amounts of global data including bodies of literature, the global news output, and extensive data from Subject Matter Experts, in order to understand culturally specific threat, motivation, influence and intent.

The flexibility of the underlying Logic Web™ allows the output format of the CSM to be customized. Output modalities include enhanced versions of analytic output, experience oriented visualizations and continuously updated reports. The multi-tiered, perception oriented, ontological structure of the CSM anticipates the need to see Situational overviews as well as correlated detailed views that can be presented on a user directed basis. Deconstruction of both data and software at the infrastructure level facilitates data reconfiguration, access and control.

Next Steps
 • Assessment and anticipation per demographic
 • Additional linguistic expertise
 • GIS integration
 • Generational advances in visualization
 • Incorporate sound and images
 • Image to image search

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