



# UT-Austin Sensible Agents Participation in CoAX 2002

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**Coalition Force Command requests Adaptive Agent Organizations (AAO) services through IX process panels**

**AAO evaluates potential additional partners for monitoring Agadez sub, preferring Arabello based on available sensor grid**

**Adaptive Agent Organizations (AAO)**

Goal: Monitor Submarine Position (Agadez)  
 Resource Type: ASW Sensor  
 Organizational Specification: \*

**Resources with Max Utility**  
 Status: Results shown below  
 \*ASW Sensor\* List  
 Utility (0-1) Sensor  
 0.5 Arabello Sensor Grid  
 0.4 Australian Off-Ship Sensor  
 0.3 USA Sensor  
 0.2 Intelligence feed  
 0.0 Australian On-Ship Sensor

**Org. Configurations with Max Utility**  
 Status: Results shown below  
 Decision-Making Control:  
 Consensus Org ( CFC, US, <Sensor Type> )  
 Information-Sharing Network:  
 CFC, US, <Sensor Type>

**Selected Max Utility Organization Configuration with Members**  
 Status: Results shown below  
 Decision-Making Control:  
 Consensus Org ( CFC, US, Arabello Sensor Grid )

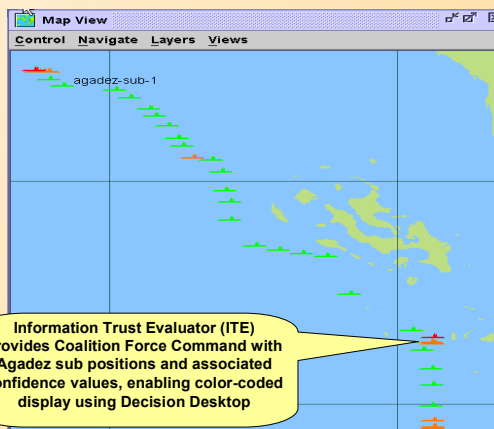
**AAO recommends "consensus" as best organizational structure to accomplish monitoring task**

## Description:

- Sensible Agents provides advanced software agent capabilities designed to help the warfighter manage uncertainty and collaborate with others to accomplish goals:
  - Adaptive Agent Organizations
 

For accomplishing a given goal, finds and evaluates potential partners and determines the "best" organizational configuration among selected partners based on the current situation
  - Trustworthiness Evaluation
 

Manages the inherent uncertainty associated with assessing the situational picture by asserting the perceived trustworthiness of information sources and their data

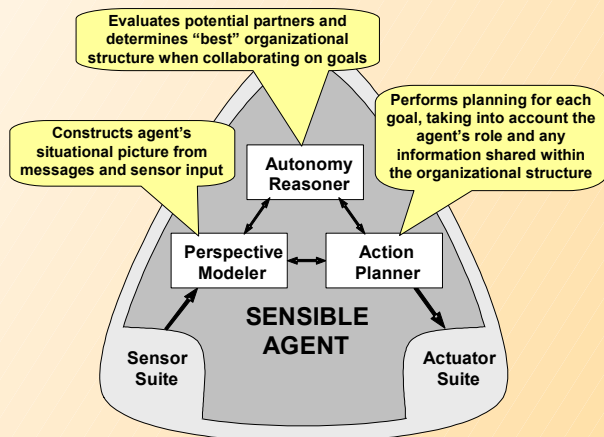


## Results:

- Demonstrated Adaptive Agent Organizations in the CoAX scenario:
 

Helped Coalition Force Command manage resources for monitoring the Agadez submarine by identifying Arabello as a preferred new partner and recommending a consensus organization composed of Arabello and current coalition members
- Demonstrated Trustworthiness Evaluation in the CoAX scenario:
 

Assisted the process of managing incoming information about the Agadez sub by maintaining sensor reputations and determining confidence in sub positions



## Future:

- Applying Sensible Agent capabilities to aid decision-makers in military domains:
  - Dynamically adapting organizational structure and filtering information inputs to reduce decision-maker cognitive load
  - Managing intelligent agents on the battlefield
  - Improving early warning in biosurveillance activities, increasing potential for early response to public health threats and chem-bio incidents
- Conducting experiments to better understand the role of agent-based solutions for solving complex problems:
  - Determining the problem classes against which agent-based solutions offer superior performance

