ALTARUM

DEPTH OF KNOWLEDGE • HEIGHTS OF INNOVATION

The Altarum Institute

An Introduction for the CBMANET Industry Day

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The Altarum Institute

- Not-for-Profit Research & Innovation Company
- 300+ Employees
- Ann Arbor (Headquarters); Washington D.C.; San Antonio
- Focus Application Areas (primarily government):
  - Program Mgmt Support
  - Healthcare Mgmt Support
  - Environmental Mgmt
- Technology Research & Development
  - Agent-Based and Complex Systems
  - Radar, Remote Sensing & (Communications) Networking

Agent-Based and Complex Systems

- Populous, Entity-Based, Embedded Systems
- Application Domain Characteristics
  - Discrete, Distributed, Deprived, Decentralized, Dynamic
  - Modeling → Monitoring → Managing
- Approach: Hybridization of AI and SI
  - AI (Artificial Intelligence) to reduce the search space and focus on promising solution regions
  - SI (Swarm Intelligence) to deal with combinatorial explosion, uncertainty and dynamics
- Examples:
  - Command & Control – Emergent Network Management, Unmanned Robotic Vehicles, Adversarial Reasoning, Supply & Logistics Management
  - Information Management – Intelligence Analyst Support Dealing with Massive Databases
  - Modeling and Simulation – Crowd Modeling, Understanding Dynamics of Processes on Networks