

# MASTER OF SCIENCE IN SYSTEMS TECHNOLOGY

---

## THE CONDUCT AND ASSESSMENT OF A2C2 EXPERIMENT 7

Wendell L. Pasaraba-Lieutenant, United States Navy

B.S., University of Southern California, 1993

Master of Science in Systems Technology-September 2000

Advisors: William G. Kemple, Command, Control, Communications, Computers, and Intelligence  
Academic Group

Susan P. Hocevar, Department of Systems Management

Adaptive Architectures for Command and Control (A2C2) Experiment 7 is the latest in the series of experiments designed to investigate the effects of modifying current military organizational structures. It is a continuation of A2C2 Experiment 4, which compared the performance of a mission-optimized architecture to a non-optimized traditional architecture. The focus of A2C2 Experiment 7 involves the introduction of complex, unexpected tasks requiring multi-node coordination into the simulation scenario, and the examination of two disparate command and control architectures in dealing with these unexpected tasks. The two architectures, by design, differed in the amount of coordination required to accomplish the known scenario mission tasks. The “Autonomous” optimized architecture’s design emphasized inter-nodal autonomy in performing mission tasks, while a “Interdependent” non-optimized architecture, resembling a traditional Joint Task Force (JTF) organization, operated with greater “inter-nodal” coordination. The research team expected the non-optimized architecture to have an advantage over the optimized architecture when dealing with the complex unexpected tasks, due to the higher coordination practiced in the “Interdependent” architecture. The experiment used the accuracy and latency scores of accomplishing each unexpected task as the two primary measures examined. A detailed statistical analysis is performed on the measures and the results discussed.

**DoD KEY TECHNOLOGY AREA:** Command, Control and Communications

**KEYWORDS:** Adaptive Architectures for Command and Control (A2C2)

