

12<sup>TH</sup> ICCRTS  
“Adapting C2 to the 21<sup>st</sup> Century”

Network Behaviors and Estimation  
in Large-Scale Military Command & Control Exercises

Track 7

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Abstract

This paper investigates the mediators of change in a network organization and how the state of a network organization supports performance estimation. Using a dynamic network analysis approach that considers change as it occurs in minutes, hours and days as opposed to a more traditional network analysis approach that considers weeks and months as the period of change, we developed and applied an estimation of shared situation awareness as a proxy for performance in large organizations operating in a dynamic environment. Methodologically, this research utilized a combination of field experimentation at the Army Battle Laboratories and virtual experimentation through multi-agent simulation. The initial results indicate that there is an interaction between the communications network and military organizational members' characteristics that relates to organizational change at time  $t+1$  and shared situation awareness at time  $t$ .