

# **12TH ICCRTS**

## **“Adapting C2 to the 21st Century”**

### **An Approach to Design Organizational Information Structure**

#### **Based on Genetic Algorithm**

Topics: Networks and Networking & Organizational issues

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# **An Approach to Design Organizational Information Structure Based on Genetic Algorithm**

## **Abstract:**

Military organizations have changed to adapt to their circumstances and environments by developing different approaches to command, control and communication. Approaches to design robust and adaptive military organizations are basic techniques of Network-Centric War. An object of NCW states that a robustly networked force improves information sharing and collaboration, which enables self-synchronization and improves speed and efficiency of C2.

A new approach is given in this paper to obtain a near-optimal strategy of information transfer in a network based C2 organization. Based on requirements of information sharing and transfer, optimizing model of information transfer among C2 nodes is employed to minimize cost of communication, which focus on costs of latency and link capabilities. A genetic algorithm is applied to gain optimal strategy in designing a structure of information transfer, in which capability allocation and route selection are concerned. Case study indicates that proposed algorithm has high efficiency in solving this problem and the resulting strategy is more effective than other heuristic methods.

With approach proposed in this paper, communication resources are utilized efficiently, which guarantee operation of organizational decision-making network.