

Abstract

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**Developing an Information Superiority - Command and Control
Joint Experimentation Strategy**

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ABSTRACT
2000 COMMAND AND CONTROL RESEARCH AND TECHNOLOGY SYMPOSIUM

**Developing an Information Superiority - Command and Control
Joint Experimentation Strategy**

This paper describes the rationale, development, and intended outcome of a joint experimentation strategy that will be used to investigate three concepts under study at the Joint Experimentation Directorate (J9) of the US Joint Forces Command (USJFCOM). The concepts are Common Relevant Operational Picture (CROP), Joint Interactive Planning (JIP), and Adaptive Joint Command and Control (AJC2).

USJFCOM J9 defines an experimentation strategy as a systematic and detailed plan of action encompassing methods to be adopted from beginning to end for evaluating a concept, focusing on general methods. This is contrasted with experimental design, which is defined as a plan for the process of data collection during some event to ensure capture of the information necessary to describe any interrelationships within the set of data that might exist. Thus, an experimentation strategy is a plan for investigating a concept, while an experimental design is a plan for the conduct of an experimental event. This distinction is critical, as concept-based experimentation, the USJFCOM J9 approach to experimentation, is still so new that there is little agreement among the many organizations involved on definitions and terms. Assuming one accepts this definition, this paper presents the roadmap of *how* J9 plans to address the investigation of these three concepts.

Initial efforts by the CROP, JIP, and AJC2 Integrated Concept Teams (ICTs) responsible for the concepts addressed in the strategy focused on developing a separate experimentation strategy for each concept. After much study, the ICT members found that there were so many similarities, linkages, commonalties, and interrelationships between these concepts, it only made sense to combine the ICTs themselves and to develop a single strategy for investigation of the three concepts. This grouping greatly enhances J9's ability to integrate experimentation efforts related to these three concepts in order to best explore how they facilitate, support, and enable a Joint Force Commander to conduct Attack Operations Against Critical Mobile Targets (AOACMT), a priority of USCINCFCOM.

For clarity and consistency, the experimentation strategy for the three information-related concepts is being called the Information Superiority – Command and Control (IS-C2) Experimentation Strategy. J9 believes this is entirely consistent with Joint Vision 2010, which, as the Chairman of the Joint Chiefs of Staff conceptual template, mandates the need to achieve information superiority for our future military. The IS-C2 concepts are the enablers that will allow the US to transform traditional operational warfighting by making changes in weapons systems, doctrine, culture, and organization.

The IS-C2 Experimentation Strategy describes the concept experimentation efforts that implement the Joint Experimentation Process as articulated in the Joint Experimentation Campaign Plan 2000 (CPLAN 00). Through a series of successive or spiral activities, experimental results will be used to further define and refine the three concepts under study. The

IS-C2 concepts will be modified based on the knowledge gained in the spiral events, then the revised concepts will be applied in later experimentation events using various scenarios to further refine and validate the concepts.

To achieve the advances as described in the concept white papers and a significant shortening of the Joint Force Commander's decision cycle, new approaches are required that include changes in technology, organization, doctrine and tactics, techniques and procedures (TTPs). Changing any of these elements individually will likely result in only incremental improvements in capability. True leap-ahead capabilities will only be achieved by developing new paradigms that incorporate organization and processes specifically designed to take maximum advantage of technological advances expected to be operationally available in the 2010 timeframe. These new paradigms will be described for the three IS-C2 concepts in a set of alternative CONOPS. The IS-C2 Experimentation Strategy will describe how these alternative CONOPS will be evaluated through experimentation to identify a promising alternative.

The IS-C2 Experimentation Strategy establishes the objectives that are to be addressed in the exploration and experimentation of the three IS-C2 concepts. The objectives articulated in the experimentation strategy serve as the focal points for exploring and validating concepts. These objectives provide the basis for IS-C2 questions that can be addressed through a variety of venues. Joint experimentation venues range from Limited Objective Experiments (LOEs) that examine a specific piece of the concepts to major joint exercises involving the CINCs, Services, and coalition partners. Along with each of the objective and associated questions, the IS-C2 Experimentation Strategy provides brief descriptions of experiments or series of experiments that J9 envisions will be needed to address the objective.

The IS-C2 Experimentation Strategy is a living document. Its development is a continuous process and updates will be published as necessary. As lessons from ongoing experiments are learned, the concepts, and thus the experimentation strategy, will be continuously reviewed and refined. J9 believes it must have the flexibility to redirect experimentation efforts in order to exploit newly found opportunities and drop those initiatives that fail to produce the anticipated capabilities.

The IS-C2 concepts will be demonstrated in a major joint integrating experiment (MJIE) that will take place in 2004. The IS-C2 Experimentation Strategy will lay out an orderly progression of experimentation on the three IS-C2 theme concepts over the years 2000 to the 2004. The intent of the MJIE is to demonstrate the validity of the joint experimentation concepts to the warfighting community such that a decision might be rendered at that time to apply funding against the most promising aspects of the concepts.

The end-state of the Joint Experimentation Process is to make doctrine, organizational, training, materiel, leadership, and personnel (DOTMLP) recommendations to transform the military that are based on experimentation results. After each experimentation event, a report will be produced that will serve as the basis for synthesizing the lessons learned through experimentation into DOTMLP recommendations.

Concept exploration is iterative in nature. The findings from experiments are used to adjust, modify, and perhaps even completely revamp concepts. Thus, concepts will evolve over time. The findings that evolve concepts are also the basis for DOTMLP recommendations or the seeds for new concepts.

The IS-C2 Experimentation Strategy development is divided into five basic activities. The first activity is to decompose the concepts into tangible elements that can be examined through experimentation. Decomposition facilitates identifying common and related elements that can be examined during a single event. Decomposition also aids establishing a sequence for examining concept elements. The second activity is to benchmark the current capability to execute the concept. The third activity is to propose an alternative or alternatives to significantly improve the execution of the concept. Remember that J9 is not interested in marginal improvements in the ability to execute an option. The fourth activity is to identify experimentation objectives associated with the concept benchmark or alternative elements. The objectives are the basis for defining experimental events to explore the objectives. The fifth activity is to refine an alternative by applying the knowledge gained through experimental events.

The parts do not have to be done sequentially or in the order presented. Establishing the benchmark and developing alternatives can be done concurrently. Objective identification can start with concept development, is not wholly dependent on benchmarking or alternative development, and can continue through alternative refinement. Refining an alternative is an ongoing process that continues throughout the experimentation process.

The concept objectives that form the essence of the IS-C2 Experimentation Strategy originate from several sources, mainly the concept white papers, concept decompositions, and lessons learned from experimentation events. IS-C2 concept objectives are associated with either a single or multiple concepts. The objective is stated as an operational area to be addressed. For example, “Reduce time to make decisions in a JTF targeting cell.” Associated with each concept objective is a series of questions that guide experimental design. Each concept objective includes a rationale, which presents the motivation for exploring the objective through experimentation.

Each concept objective includes an experiment description. The description proposes venues with short descriptions and intended outcomes. The venues are mapped to specific objective questions. The experiment description represents the IS-C2 ICT recommendations on the types of events best suited to examine the concept objective. This can be thought of as the unconstrained experimentation strategy.

Lastly, each concept objective lists experimentation opportunities for examining the concept objective. This list is based on known or planned events, which may provide opportunities for examining the objective questions. Opportunities are mapped to questions as a guide for experiment designers and event planners.