



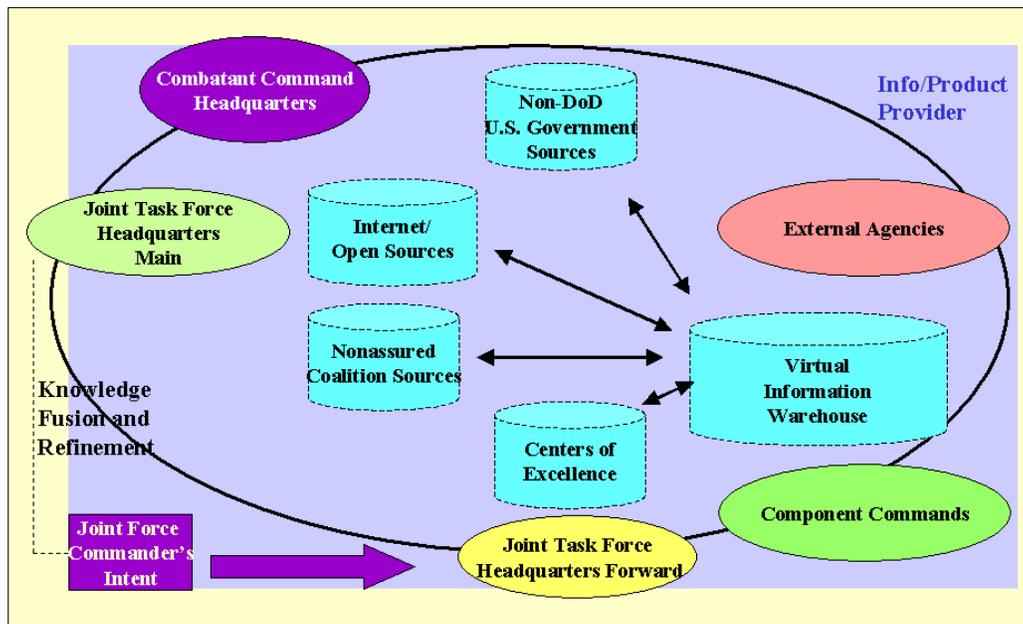
# U.S. JOINT FORCES COMMAND JOINT CONCEPT DEVELOPMENT AND EXPERIMENTATION'S CONCEPT PRIMER

## Collaborative Information Environment (CIE)

*The CIE is a virtual aggregation of individuals, organizations, systems, infrastructure, and processes to create and share the data, information, and knowledge needed to plan, execute, and assess joint force operations and to enable a commander to make decisions better and faster than the adversary.*

### Introduction

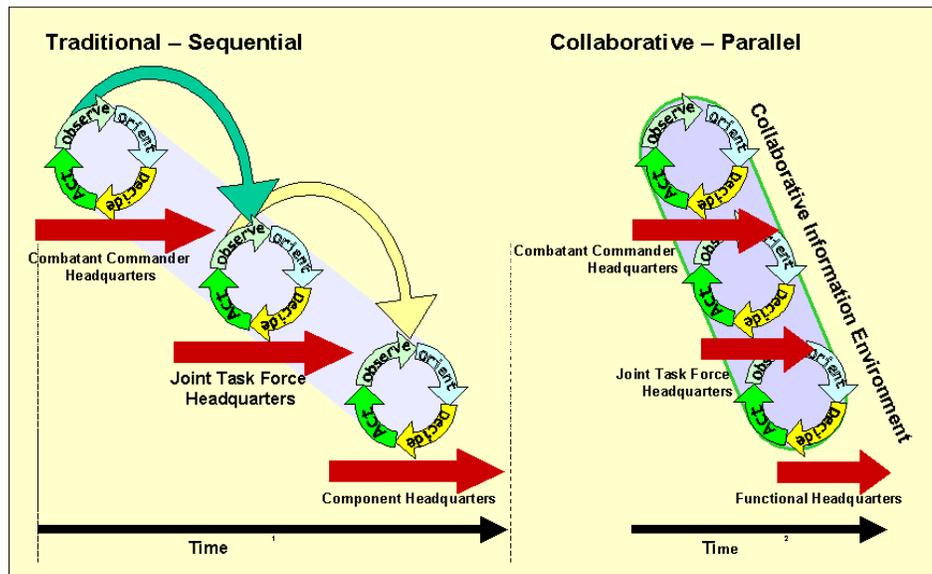
The Chairman of the Joint Chiefs of Staff's joint vision requires the United States' armed forces to increase strategic and operational responsiveness dramatically by further developing today's capabilities for joint command-and-control. Most importantly, the joint force must focus on teamwork, built on confidence and trust, to create effective joint teams at all levels of warfare. To accomplish this transformational task, we must improve collaboration among combatant commands, services, combat service support agencies, and interagency and coalition partners. A collaborative information environment enables and integrates such a cooperative effort.



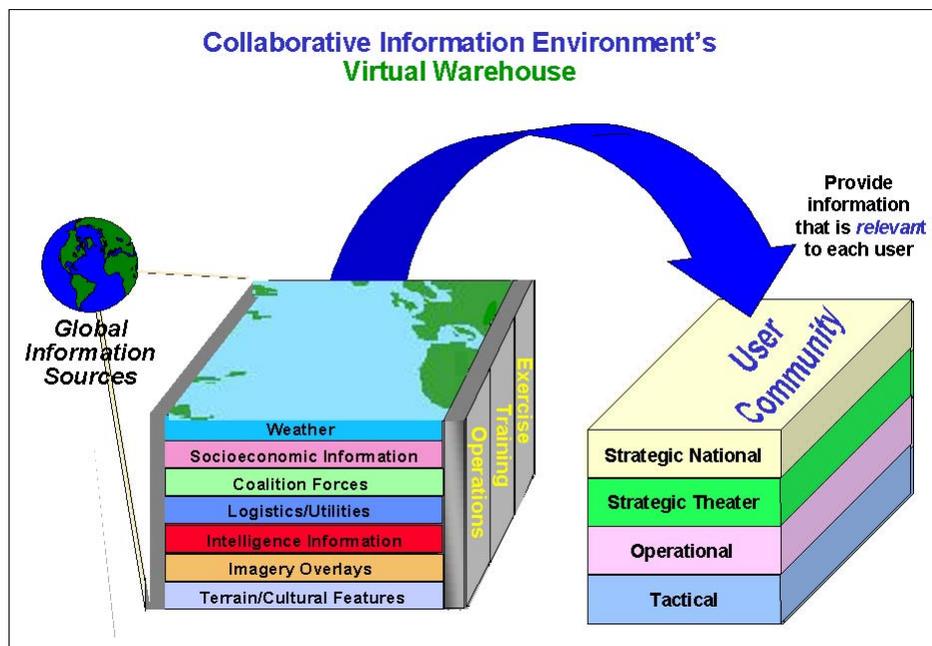
*The collaborative information environment concept combines advanced information technology with complementary organizational changes and dynamic processes to transform future command-and-control.*

## Concept Description

The amount of information available to a joint force commander is staggering but relatively useless without an overarching collaborative process and system of tools to enhance the planning, execution, and assessment of joint operations. To this end, the collaborative information environment transforms joint collaborative planning from the traditionally hierarchical, sequential process to a more parallel method that allows supporting staffs and other resources, separated by geography, time, and organizational boundaries, to interact and coordinate the plans development. Virtual collaboration allows a reduced command-and-control “footprint” in forward areas of operation. Each level of command—from the joint force commander to the components—will be involved simultaneously in planning, resulting in a better understanding of the commander’s intent, in a better unity of effort, and in shorter planning cycles.



*The CIE enables a near simultaneous planning, execution, and assessment process both vertically and horizontally. Thus reducing the planning cycle timeline and increasing joint force responsiveness.*



*A collaborative information environment is a total collection of information from diverse sources that is provided to support the user community of command-and-control organizations.*

Access to the right information, at the right place, at the right time, in the right format, accelerates the warfighter’s decision-to-action operations tempo. The collaborative information environment contains a virtual information warehouse—friendly, neutral, and enemy force dispositions in aerospace, land, and sea; intelligence, maps, and imagery; physical environment, logistics, and planning data; weather, socioeconomic, and cultural information. Users access the virtual warehouse

to extract timely, assured, and relevant information needed to accomplish their mission. Such rapid access to the volumes of libraries available to the CIE, combined with the ability to collaborate quickly with domain experts, enables commanders and staffs to achieve an exceptionally high degree of shared battlespace awareness.

The CIE comprises:

- ❑ **Collaborative decision-support tools.** The most important capability that the CIE offers is a suite of tools that enable Web-based planning and that form the joint force's primary workspace. Using these tools, all joint force personnel collaborate within the CIE as if they shared the same physical location with contacts that often are hundreds or even thousands of miles away. Collaborative planning processes and these support tools combine to produce a dynamic, shared plan.
- ❑ **Enterprise information portal.** This electronic gateway enables CIE participants to access the "virtual information warehouse." The portal supports workflow planning and execution to ensure that the preapproved information is made available. It provides adjustable views of preselected distributed databases.
- ❑ **Situational awareness tools.** These tools enable correlation and distribution of large amounts of operational, intelligence, and related data, while improving current decision-making.

The collaborative information environment supports the multilevel security partitioning of vital information to enable allied and coalition forces to participate, in accordance with policy and information-sharing agreements. Advanced input and presentation human-systems technologies support user interaction with the CIE, including conversational speech recognition; virtual reality and three-dimensional graphics; integration of personal, handheld, input-output devices with other workstations; and new interaction techniques that facilitate collaborative work on shared displays.

### Implications for Joint Warfighting

- ❑ Training for membership in a collaborative, virtual team must be completed throughout the armed forces.
- ❑ The services' command-and-control systems must become fully interoperable with the collaborative tools and databases developed to support participation in the CIE.
- ❑ New business rules and planning hierarchies to support distributed planning must be designed and implemented.
- ❑ Multilevel security rules and processes must be developed to support effective allied and coalition participation with U.S. forces.

### Concept Growth

The collaborative information environment will be a key enabler of all current and future joint concepts. The CIE concept will continue to mature, even as baseline CIEs are installed at combatant command headquarters, throughout the Department of Defense, and eventually at many agencies. Both joint force experimentation and real-world operations have validated the need for a CIE to support operations and planning in the information age. In the future, collaboration and its supporting architectures will become as common as "surfing the Web" is today.

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**CIE CONCEPT PRIMER**  
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