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## Technology: Double Helix Methodology

# The Right Technology for Tomorrow—Today

Throughout the history of armed combat, victory has often been the result of innovative tactics and improved weapons. In today's rapidly evolving combat environment it is imperative to shape both the warfighter's concept of operations (CONOPS) and supporting technology—developing truly disruptive capabilities—to meet future challenges.

Lockheed Martin Advanced Technology Laboratories (LM ATL) has developed the Double Helix methodology that co-evolves technologies and CONOPS to identify the right technologies for tomorrow—today.

The pursuit of disruptive capabilities involves overcoming many challenges. Traditional acquisition processes involve the specification of Operational and Key Performance Parameters in support of an established CONOPS. The vision for that CONOPS, however, is often limited by what is considered possible based on current or near-term technologies. Consequently, system engineering proceeds with exhaustive requirements decomposition leading to stale, over-specified metrics, requirements, documentation and

decision processes. This stifles technological innovation, resulting in solutions to “yesterday's problems.”

### A Visionary Process

LM ATL's Double Helix methodology is unique because it, instead, focuses on building collaborative relationships between visionary users, innovative technologists, and system developers to jointly create a vision of emerging CONOPS and responsive technologies. The Double Helix methodology uses a structured, yet tailorable, progression of activities where the cross-functional team probes the future for new capabilities. In the process, warfighters learn the capabilities of emerging and “over the horizon” technologies, while researchers and system developers are challenged to think and act like warfighters.

Focused activities—such as Tactical Decision Games—give researchers and system

developers the opportunity to immerse themselves in the decision-making process of the domain under the guidance of experienced warfighters. Early brainstorming exercises focus on operationally relevant problems to explore innovative

up or functional system prototypes, refining organizational models, and testing new operational capabilities against performance requirements. Experience in the Double Helix process is key to the creative design and dynamic exe-



**The Double Helix methodology leads researchers to creative solutions for constantly evolving concepts of operations—such as the development of the Command Post of the Future.**



operational concepts and potential technology-insertion opportunities and to lay the foundation for lasting collaborative relationships by creating shared experiences.

These exercises evolve into deeper scenario-based experiments with varying objectives, including evaluating mocked-

up or functional system prototypes, refining organizational models, and testing new operational capabilities against performance requirements. Experience in the Double Helix process is key to the creative design and dynamic exe-

### Demonstrative Success

The Double Helix methodology was used to create the U.S. Army's Command Post of the Future (CPoF). CPoF was selected as the primary command and control system for a division deployed to Baghdad in April 2004 and has since been expanded to all of Iraq.

For More Information:

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