

Conduct of Joint Operations

The complexities of the future security environment demand that the United States be prepared to face a wide range of threats of varying levels of intensity. Success in countering these threats will require the skillful integration of the core competencies of the Services into a joint force tailored to the specific situation and objectives. Commanders must be afforded the opportunity to achieve the level of effectiveness and synergy necessary to conduct decisive operations across the entire range of military operations. When combat operations are required, they must have an overwhelming array of capabilities available to conduct offensive and defensive operations and against which an enemy must defend. Other complex contingencies such as humanitarian relief or peace operations will require a rapid, flexible response to achieve national objectives in the required timeframe. Some situations may require the capabilities of only one Service, but in most cases, a joint force comprised of both Active and Reserve Components will be employed.

The complexity of future operations also requires that, in addition to operating jointly, our forces have the capability to participate

effectively as one element of a unified national effort. This integrated approach brings to bear all the tools of statecraft to achieve our national objectives unilaterally when necessary, while making optimum use of the skills and resources provided by multinational military forces, regional and international organizations, non-governmental organizations, and private voluntary organizations when possible. Participation by the joint force in operations supporting civil authorities will also likely increase in importance due to emerging threats to the US homeland such as terrorism and weapons of mass destruction.

PEOPLE

The core of the joint force of 2020 will continue to be an All Volunteer Force composed of individuals of exceptional dedication and



ability. Their quality will matter as never before as our Service members confront a diversity of missions and technological demands that call for adaptability, innovation, precise judgment, forward thinking, and multicultural understanding. The Nation will continue to depend on talented individuals of outstanding character, committed to an ethic of selfless service.

Our people will require a multitude of skills. The Services will play a critical role in



perfecting their individual specialties and the core competencies of each organization. In addition, every member of the Total Force must be prepared to apply that expertise to a wide range of missions as a member of the joint team. Our Service members must have the mental agility to transition from preparing for war to enforcing peace to actual combat, when

necessary. The joint force commander is thereby provided a powerful, synergistic force capable of dominating across the entire range of operations.

The missions of 2020 will demand Service members who can create and then take advantage of intellectual and technological innovations. Individuals will be challenged by significant responsibilities at tactical levels in the organization and must be capable of making decisions with both operational and strategic implications. Our vision of full spectrum dominance and the transformation of operational capabilities has significant implications for the training and education of our people. The tactics of information operations, the coordination of interagency and



multinational operations, as well as the complexity of the modern tools of war all require people who are both talented and trained to exacting standards. Rapid and dispersed operations will require men and women who are part of a cohesive team, yet are capable of

operating independently to meet the commander's intent. The evolution of new functional areas, such as space operations and information operations, will require development of appropriate career progression and leadership opportunities for specialists in those fields. The accumulation of training and experience will create a force ready to deploy rapidly to any point on the globe and operate effectively.

The joint force of 2020 will face a number of challenges in recruiting and retaining the outstanding people needed to meet these requirements. First, expanding civilian education and employment opportunities will reduce the number of candidates available for military service. We will continue to focus on our members' standard of living and a competitive compensation strategy to ensure we attract the quality individuals we need.

Second, the increasing percentage of members with dependents will require a commitment to family-oriented community support programs and as much stability as possible, as well as close monitoring of the impact of the operations tempo. Finally, our increased dependence on the Reserve Component will require us to address the concerns of our reserve members and their employers regarding the impact on civilian careers. The Department of Defense and Services must meet these challenges head-on.

Military operations will continue to demand extraordinary dedication and sacrifice under the most adverse conditions. Our Total Force, composed of professionals armed with courage, stamina, and intellect, will succeed despite the complexity and pace of future operations.



INTEROPERABILITY

Interoperability is the foundation of effective joint, multinational, and interagency operations. The joint force has made significant progress toward achieving an optimum level of interoperability, but there must be a concerted effort toward continued improvement. Such improvements will include the refinement of joint doctrine as well as further development of common technologies and processes. Exercises, personnel exchanges, agreement on standardized operating procedures, individual training and education, and planning will further enhance and institutionalize these capabilities. Interoperability is a mandate for the joint force of 2020 – especially in terms of communications, common logistics items, and information sharing. Information systems and equipment that enable a common relevant operational picture must work from shared networks that can be accessed by any appropriately cleared participant.

Although technical interoperability is essential, it is not sufficient to ensure effective operations. There must be a suitable focus on procedural and organizational elements, and decision makers at all levels must understand each other's capabilities and constraints. Training and education, experience and exercises, cooperative planning, and skilled liaison at all levels of the joint force will not only overcome the barriers of organizational culture and differing priorities, but will teach members

of the joint team to appreciate the full range of Service capabilities available to them.

The future joint force will have the embedded technologies and adaptive organizational structures that will allow trained and experienced people to develop compatible processes and procedures, engage in collaborative planning, and adapt as necessary to specific crisis situations. These features are not only vital to the joint force, but to multinational and interagency operations as well.

Interoperability – the ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to use the services so exchanged to enable them to operate effectively together. (JP1-02)

Multinational Operations

Since our potential multinational partners will have varying levels of technology, a tailored approach to interoperability that accommodates a wide range of needs and capabilities is necessary. Our more technically advanced allies will have systems and equipment that are essentially compatible, enabling them to interface and share information in order to operate effectively with US forces at all levels. However, we must also be capable of operating with allies and coalition partners who may be technologically incompatible – especially at the tactical level. Additionally, many of our future partners will have significant specialized capabilities that



may be integrated into a common operating scheme. At the same time, the existence of these relationships does not imply access to information without constraints. We and our multinational partners will continue to use suitable judgment regarding the protection of sensitive information and information sources.

In all cases, effective command and

Multinational Operations – a collective term to describe military actions conducted by forces of two or more nations usually undertaken within the structure of a coalition or alliance. (JP1-02)

control is the primary means of successfully extending the joint vision to multinational operations. Technological developments that connect the information systems of partners will provide the links that lead to a common relevant operational picture and improve command and control. However, the sharing of information needed to maintain the tempo of integrated multinational operations also relies heavily on a shared understanding of operational procedures



and compatible organizations. The commander must have the ability to evaluate information in its multinational context. That context can only be appreciated if sufficient regional expertise and liaison capability are available on the commander's staff. A deep understanding of the cultural, political, military, and economic characteristics of a region must be established

and maintained. Developing this understanding is dependent upon shared training and education, especially with key partners, and may require organizational change as well. The overall effectiveness of multinational operations is, therefore, dependent on interoperability between organizations, processes, and technologies.



Interagency Operations

The primary challenge of interagency operations is to achieve unity of effort despite the diverse cultures, competing interests, and differing priorities of the participating organizations, many of whom guard their relative independence, freedom of action, and impartiality. Additionally, these organizations may lack the structure and resources to support

Interagency Coordination – within the context of Department of Defense involvement, the coordination that occurs between elements of the Department of Defense and engaged US Government agencies, non-governmental organizations, private voluntary organizations, and regional and international organizations for the purpose of accomplishing an objective.

(JP1-02)



extensive liaison cells or integrative technology. In this environment and in the absence of formal command relationships, the future joint force must be proactive in improving communications, planning, interoperability, and liaison with potential interagency participants. These factors are important in all aspects of interagency operations, but particularly in the context of direct threats to citizens and facilities in the US homeland. Cohesive interagency action is vital to deterring, defending against, and responding to such attacks. The joint force must be prepared to support civilian authorities in a fully integrated effort to meet the needs of US citizens and accomplish the objectives specified by the National Command Authorities.

All organizations have unique information assets that can contribute to the common relevant operational picture and support unified action. They also have unique information requirements. Sharing information with appropriately cleared participants and integration of information from all sources are essential. Understanding each other's requirements and assets is also crucial. More

importantly, through training with potential interagency partners, experienced liaisons must be developed to support long-term relationships, collaborative planning in advance of crises, and compatible processes and procedures. As with our multinational partners, interoperability in all areas of interaction is essential to effective interagency operations.



OPERATIONAL CONCEPTS

Dominant Maneuver

The joint force capable of dominant maneuver will possess unmatched speed and agility in positioning and repositioning tailored forces from widely dispersed locations to achieve operational objectives quickly and decisively. The employment of dominant maneuver may lead to achieving objectives directly, but can also facilitate employment of the other operational concepts. For example, dominant maneuver may be employed to dislodge enemy forces so they can be destroyed through precision engagement. At times, achieving positional advantage will be a function of operational maneuver over strategic distances. Overseas or US-based units will mass forces or effects directly to the operational theater. Information superiority will support the conduct of dominant maneuver by enabling adaptive and concurrent planning; coordination of widely dispersed units; gathering of timely feedback on the status, location, and activities of subordinate units; and anticipation of the course of events leading to mission accomplishment. The joint force will also be capable of planning and conducting dominant maneuver in cooperation with interagency and multinational partners with varying levels of commitment and capability.

The capability to rapidly mass force or forces and the effects of dispersed forces

Dominant Maneuver is the ability of joint forces to gain positional advantage with decisive speed and overwhelming operational tempo in the achievement of assigned military tasks. Widely dispersed joint air, land, sea, amphibious, special operations and space forces, capable of scaling and massing force or forces and the effects of fires as required for either combat or noncombat operations, will secure advantage across the range of military operations through the application of information, deception, engagement, mobility and counter-mobility capabilities.

allows the joint force commander to establish control of the battlespace at the proper time and place. In a conflict, this ability to attain positional advantage allows the commander to employ decisive combat power that will compel an adversary to react from a position of disadvantage, or quit. In other situations, it allows the force to occupy key positions to shape the course of events and minimize hostilities or react decisively if hostilities erupt. And in peacetime, it constitutes a credible capability that influences potential adversaries while reassuring friends and allies.



Beyond the actual physical presence of the force, dominant maneuver creates an impact in the minds of opponents and others in the operational area. That impact is a tool available to the joint force commander across the full range of military operations. In a conflict, for example, the presence or anticipated presence of a decisive force might well cause an enemy to surrender after minimal resistance. During a peacekeeping mission, it

may provide motivation for good-faith negotiations or prevent the instigation of civil disturbances. In order to achieve such an impact, the commander will use information operations as a force multiplier by making the available combat power apparent without the need to physically move elements of the force. The joint force commander will be able to take advantage of the potential and actual effects of dominant maneuver to gain the greatest benefit.

Precision Engagement

Simply put, precision engagement is effects-based engagement that is relevant to all types of operations. Its success depends on in-depth analysis to identify and locate critical nodes and targets. The pivotal characteristic of precision engagement is the linking of sensors, delivery systems, and effects. In the joint force of the future, this linkage will take place across Services and will incorporate the applicable capabilities of multinational and interagency partners when appropriate. The resulting system of systems will provide the commander the broadest possible range of capabilities in responding to any situation, including both kinetic and nonkinetic weapons capable of creating the desired lethal or nonlethal effects.

The concept of precision engagement extends beyond precisely striking a target with explosive ordnance. Information superiority will



Precision Engagement is the ability of joint forces to locate, surveil, discern, and track objectives or targets; select, organize, and use the correct systems; generate desired effects; assess results; and reengage with decisive speed and overwhelming operational tempo as required, throughout the full range of military operations.

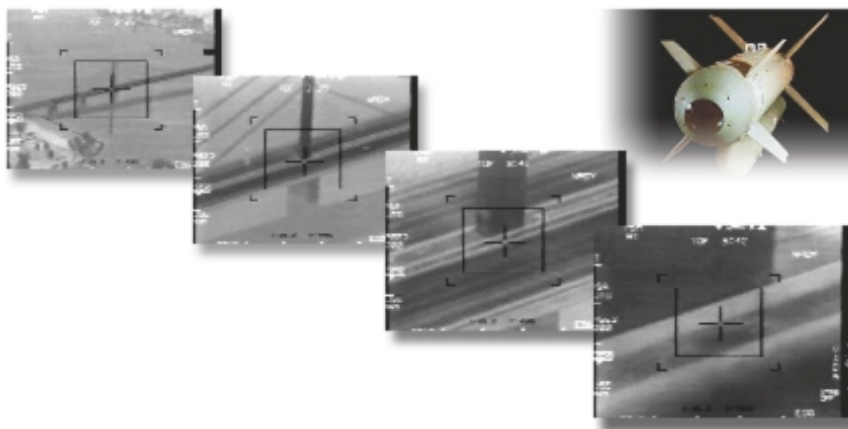
enhance the capability of the joint force commander to understand the situation, determine the effects desired, select a course of action and the forces to execute it, accurately assess the effects of that action, and reengage as necessary while minimizing collateral



damage. During conflict, the commander will use precision engagement to obtain lethal and nonlethal effects in support of the objectives of the campaign. This action could include destroying a target using conventional forces, inserting a special operations team, or even the

execution of a comprehensive psychological operations mission. In other cases, precision engagement may be used to facilitate dominant maneuver and decisive close combat. The commander may also employ nonkinetic weapons, particularly in the arena of information operations where the targets might be key enemy leaders or troop formations, or the opinion of an adversary population.

In noncombat situations, precision engagement activities will, naturally, focus on nonlethal actions. These actions will be capable of defusing volatile situations, overcoming misinformation campaigns, or directing a flow of refugees to relief stations, for example. Regardless of its application in combat or noncombat operations, the capability to engage precisely allows the commander to shape the situation or battle space in order to achieve the desired effects while minimizing risk to friendly forces and contributing to the most effective use of resources.



Focused Logistics

Focused logistics will provide military capability by ensuring delivery of the right equipment, supplies, and personnel in the right quantities, to the right place, at the right time to support operational objectives. It will result from revolutionary improvements in information systems, innovation in organizational structures, reengineered processes, and advances in transportation technologies. This transformation has already begun with changes scheduled for the near term (see events highlighted in box at right) facilitating the ultimate realization of the full potential of focused logistics.

Focused logistics will effectively link all logistics functions and units through advanced information systems that integrate real-time total asset visibility with a common relevant operational picture. These systems will incorporate enhanced decision support tools that will improve analysis, planning, and anticipation of warfighter requirements. They will also provide a more seamless connection to

Focused Logistics Transformation Path

FY 01, implement systems to assess customer confidence from end to end of the logistics chain using customer wait time metric.

FY 02, implement time definite delivery capabilities using a simplified priority system driven by the customer's required delivery date.

FY 04, implement fixed and deployable automated identification technologies and information systems that provide accurate, actionable total asset visibility.

FY04 for early deploying forces and **FY 06** for the remaining forces, implement a web-based, shared data environment to ensure the joint warfighters' ability to make timely and confident logistics decisions.

Focused Logistics is the ability to provide the joint force the right personnel, equipment, and supplies in the right place, at the right time, and in the right quantity, across the full range of military operations. This will be made possible through a real-time, web-based information system providing total asset visibility as part of a common relevant operational picture, effectively linking the operator and logistician across Services and support agencies. Through transformational innovations to organizations and processes, focused logistics will provide the joint warfighter with support for all functions.

the commercial sector to take advantage of applicable advanced business practices and commercial economies. Combining these capabilities with innovative organizational structures and processes will result in

will be an improved link between operations and logistics resulting in precise time-definite delivery of assets to the warfighter. This substantially improved operational effectiveness and efficiency, combined with increasing



warfighter confidence in these new capabilities, will concurrently reduce sustainment requirements and the vulnerability of logistics lines of communication, while appropriately sizing and potentially reducing the logistics footprint. The capability for focused logistics will effectively support the joint force in combat and provide the primary operational

dramatically improved end-to-end management of the entire logistics system and provide precise real-time control of the logistics pipeline to support the joint force commander's priorities. The increased speed, capacity, and efficiency of advanced transportation systems will further improve deployment, distribution, and sustainment. Mutual support relationships and collaborative planning will enable optimum cooperation with multinational and interagency partners.



element in the delivery of humanitarian or disaster relief, or other activities across the range of military operations.

The result for the joint force of the future

Full Dimensional Protection

Our military forces must be capable of conducting decisive operations despite our adversaries' use of a wide range of weapons (including weapons of mass destruction), the conduct of information operations or terrorist attacks, or the presence of asymmetric threats during any phase of these operations. Our people and the other military and nonmilitary

assets needed for the successful conduct of operations must be protected wherever they are located – from deployment, to theater combat, to redeployment. Full dimensional protection exists when the joint force can decisively achieve its mission with an acceptable degree of risk in both the physical and information domains.

The capability for full dimensional protection incorporates a complete array of both combat and noncombat actions in offensive and defensive operations, enabled by information superiority. It will be based upon active and passive defensive measures, including theater

Full Dimensional Protection is the ability of the joint force to protect its personnel and other assets required to decisively execute assigned tasks. Full dimensional protection is achieved through the tailored selection and application of multilayered active and passive measures, within the domains of air, land, sea, space, and information across the range of military operations with an acceptable level of risk.



missile defenses and possibly limited missile defense of the United States; offensive countermeasures; security procedures; antiterrorism measures; enhanced intelligence collection and assessments; emergency preparedness; heightened security awareness; and proactive engagement strategies. Additionally, it will extend beyond the immediate theater of operations to protect our reach-back, logistics, and key capabilities in other locations. There is a critical need for protection of the information content and systems vital for operational success, including increased vigilance in counterintelligence and information security. The joint force of 2020 will integrate protective capabilities from multinational and

interagency partners when available and will respond to their requirements when possible. Commanders will thoroughly assess and manage risk as they apply protective measures to specific operations, ensuring an appropriate level of safety, compatible with other mission objectives, is provided for all assets.

The joint force commander will thereby be provided an integrated architecture for protection, which will effectively manage risk to the joint force and other assets, and leverage the contributions of all echelons of our forces and those of our multinational and interagency partners. The result will be improved freedom of action for friendly forces and better protection at all echelons.



INFORMATION OPERATIONS

Information operations are essential to achieving full spectrum dominance. The joint force must be capable of conducting information operations, the purpose of which is to facilitate and protect US decision-making processes, and in a conflict, degrade those of an adversary. While activities and capabilities

employed to conduct information operations are traditional functions of military forces, the pace of change in the information environment dictates that we expand this view and explore broader information operations strategies and concepts. We must recognize that “nontraditional” adversaries who engage in



Information Operations – those actions taken to affect an adversary’s information and information systems while defending one’s own information and information systems. (JP1-02) Information operations also include actions taken in a noncombat or ambiguous situation to protect one’s own information and information systems as well as those taken to influence target information and information systems.

“nontraditional” conflict are of particular importance in the information domain. The United States itself and US forces around the world are subject to information attacks on a continuous basis regardless of the level and degree of engagement in other domains of operation. The perpetrators of such attacks are not limited to the traditional concept of a uniformed military adversary. Additionally, the actions associated with information operations are wide-ranging – from physical destruction to psychological operations to computer network defense. The task of integrating information operations with other joint force operations is complicated by the need to understand the many variables involved (summarized in box).

engaged in humanitarian relief operations. Such operations will be synchronized with those of multinational and interagency partners as the situation dictates. New offensive capabilities such as computer network attack techniques are evolving. Activities such as information assurance, computer network defense, and counterdeception will defend decision-making processes by neutralizing an adversaries’ perception management and intelligence collection efforts, as well as direct attacks on our information systems. Because the ultimate target of information operations is the human decision maker, the joint force commander will have difficulty accurately assessing the effects of those operations. This

The Variables of Information Operations

- Multidimensional definition and meaning of “information” – target, weapon, resource, or domain of operations
- Level of action and desired effect – tactical, operational, strategic, or combination
- Objective of operations – providing information, perception management, battle field dominance, command and control warfare, systemic disruption, or systemic destruction
- Nature of situation – peace, crisis, or conflict

Our understanding of the interrelationships of these variables and their impact on military operations will determine the nature of information operations in 2020. The joint force commander will conduct information operations whether facing an adversary during a conflict or

problem of “battle damage assessment” for information operations is difficult and must be explored through exercises and rigorous experimentation.

The continuing evolution of information operations and the global information environ-

ment holds two significant implications. First, operations within the information domain will become as important as those conducted in the domains of sea, land, air, and space. Such operations will be inextricably linked to focused logistics, full dimensional protection, precision engagement, and dominant maneuver, as well as joint command and control. At the same time, information operations may evolve into a separate mission area requiring the Services to maintain appropriately designed organizations and trained specialists. Improvements in doctrine, organization, and technology may lead to decisive outcomes resulting primarily from information operations. As information operations continue to evolve, they, like other

military operations, will be conducted consistent with the norms of our society, our alliances with other democratic states, and full respect for the laws of armed conflict. Second, there is significant potential for asymmetric engagements in the information domain. The United States has enjoyed a distinct technological advantage in the information environment and will likely continue to do so. However, as potential adversaries reap the benefits of the information revolution, the comparative advantage for the US and its partners will become more difficult to maintain. Additionally, our ever-increasing dependence on information processes, systems, and technologies adds potential vulnerabilities that must be defended.



JOINT COMMAND AND CONTROL

Command and control is the exercise of authority and direction over the joint force. It is necessary for the integration of the Services' core competencies into effective joint operations. The increasing importance of multinational and interagency aspects of the operations adds complexity and heightens the challenge of doing so. Command and control includes planning, directing, coordinating, and controlling forces and operations, and is focused on the effective execution of the operational plan; but the central function is decision making.

Command and control is most effective when decision superiority exists. Decision



superiority results from superior information filtered through the commander's experience, knowledge, training, and judgment; the expertise of supporting staffs and other organizations; and the efficiency of associated

Command and Control – the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. (JP1-02)

processes. While changes in the information environment have led some to focus solely on the contribution of information superiority to command and control, it is equally necessary to understand the complete realm of command and control decision making, the nature of organizational collaboration, and especially,

the “human in the loop.”

In the joint force of the future, command and control will remain the primary integrating and coordinating function for operational capabilities and Service components. As the

nature of military operations evolves, there is a need to evaluate continually the nature of command and control organizations, mechanisms, systems, and tools. There are two major issues to address in this evaluation – command structures and processes, and the information systems and technologies that are best suited to support them. Encompassed within these two issues, examination of the following related ideas and desired capabilities will serve as a catalyst for changes in doctrine, organization, and training.

- Commanders will need a broad understanding of new operational capabilities and new (often highly automated) supporting tools in order to be capable of flexible, adaptive coordination and direction of both forces and sensors.
- The staffs that support commanders must be organized and trained to take advantage of new capabilities. Commanders and staffs must also be capable of command and control in the face of technology failure.
- Commanders will be able to formulate and disseminate intent based upon up-to-date knowledge of the situation existing in the battlespace.
- Joint force headquarters will be dispersed and survivable and capable of coordinating

dispersed units and operations. Subordinate headquarters will be small, agile, mobile, dispersed, and networked.

- Faster operations tempos, increased choices among weapons and effects, and greater weapons ranges will require continuous, simultaneous planning and execution at all levels.
- Expanding roles for multinational and interagency partners will require collaborative planning capabilities, technological compatibility/interoperability, and mechanisms for efficient information sharing.

Finally, as these and other changes take place over time, we must carefully examine three aspects of the human element of command and control. First, leaders of the joint force must analyze and understand the meaning of unit cohesion in the context of the small, widely dispersed units that are now envisioned. Second, decision makers at all levels must understand the implications of new technologies that operate continuously in all conditions when human beings are incapable of the same endurance. Third, as new information technologies, systems, and procedures make the same detailed information available at all levels of the chain of command, leaders must understand the implications for decision-making



the Services. The development of effective joint command and control for the future requires rigorous and wide-ranging experimentation, focused especially on organizational innovation and doctrinal change.

processes, the training of decision makers at all levels, and organizational patterns and procedures. The potential for overcentralization of control and the capacity for relatively junior leaders to make decisions with strategic impact are of particular importance.

It has often been said that command is an art and control is a science – a basic truth that will remain true. Our thinking about command and control must be conceptually based, rather than focused on technology or materiel. Joint command and control is a nexus – a point of connection. It serves as a focal point for humans and technology, our evolving operational capabilities, and the capabilities of

Implementation

Joint Vision 2010 has had a profound impact on the development of US military capabilities. By describing those capabilities necessary to achieve success in 2010, we set in motion three important efforts. First, *JV 2010* established a common framework and language for the Services to develop and explain their unique contributions to the joint force. Second, we created a process for the conduct of joint experimentation and training to test ideas against practice. Finally, we began a process to manage the transformation of doctrine, organization, training, materiel, leadership and education, personnel, and facilities necessary to make the vision a reality. *Joint Vision 2020* builds on this foundation of success and will sustain the momentum of these processes.

The foundation of jointness is the strength of individual Service competencies pulled together. Our objective in implementing the joint vision is the optimal integration of all joint forces and effects. To achieve that goal, the interdependence of the Services requires mutual trust and reliance among all warfighters and a significantly improved level of interoperability – especially in the areas of command and control and sustainment. This interdependence will ultimately result in a whole greater than the sum of its parts, and will contribute to achieving full spectrum dominance through all forces acting in concert. The synergy gained through the interdependence of the Services makes clear that jointness is more than interoperability. The joint force requires capabilities that are beyond the simple combination of Service capabilities, and joint

experimentation is the process by which those capabilities will be achieved.

To ensure unity of effort and continuity for joint concept development and experimentation, the Secretary of Defense designated the Commander in Chief,

From Concepts to Capabilities



Joint Forces Command as the Executive Agent for experimentation design, preparation, execution, and assessment. Annual campaign plans provide focus to this effort and continuity in experimentation. The results of this iterative experimentation

cycle are forwarded as comprehensive recommendations for changes in doctrine, organization, training, materiel, leadership and education, personnel, and facilities and lead to the co-evolution of all those elements. The experimentation and implementation process supporting the transformation of the joint force is also dependent upon Service and combatant command exercises and experimentation activities. The Service and combatant command visions support the joint vision by providing guidance for these individual efforts that are congruent with the Chairman's vision. Thus, in their own experimentation venues, the Services may develop recommendations with joint implications and will forward them to the appropriate joint experimentation activity.

To effect transforming and enduring changes to our joint military capabilities, the experimentation and implementation process must include construction of a wide range of scenarios and imaginative conflict simulations to explore the shape of future operations. Such

From Vision to Experimentation

- Joint Vision 2010 (1996)
- Concept for Future Joint Operations (1997)
- 21st Century Challenges and Desired Operational Capabilities (1997)
- Joint Warfighting Experimentation Program established, USACOM (JFCOM) as Executive Agent (1998)
- Joint Vision Implementation Master Plan (1998)
- CJCSI 3170, Requirements Generation System (1999)
- JFCOM Joint Experimentation Campaign Plans (1999 and 2000)

intensive exploration of alternative concepts of operations can help the US military choose innovations that take the greatest advantage of combinations of new ideas and new technologies. The rapid pace of such changes will then drive further development of the experimentation and implementation process to field improved capabilities for the joint force.

The linchpin of progress from vision to experimentation to reality is joint training and education – because they are the keys to intellectual change. Without intellectual change, there is no real change in doctrine, organizations, or leaders. Thus, the implementation process is dependent upon incorporating concepts validated by experimentation into joint professional military education programs and joint exercises. In this way, individual Service members and units become a joint team capable of success across the full range of military operations.

Conclusion

This vision is firmly grounded in the view that the US military must be a joint force capable of full spectrum dominance. Its basis is four-fold: the global interests of the United States and the continuing existence of a wide range of potential threats to those interests; the centrality of information technology to the evolution of not only our own military, but also the capabilities of other actors around the globe; the premium a continuing broad range of military operations will place on the successful integration of multinational and interagency partners and the interoperability of processes, organizations, and systems; and our reliance on the joint force as the foundation of future US military operations.

further experimentation, exercises, analysis, and conceptual thought, especially in the arenas of information operations, joint command and control, and multinational and interagency operations.

This vision recognizes the importance of technology and technical innovation to the US military and its operations. At the same time, it emphasizes that technological innovation must



be accompanied by intellectual innovation leading to changes in organization and doctrine. Only then can we reach the full potential of the joint force – decisive capabilities across the full range of military operations. Such a vision depends upon the skill, experience, and training of the people comprising the Total Force and their leaders. The major innovations necessary to operate in the environment depicted herein can only be achieved through the recruitment, development, and retention of men and women with the courage, determination, and strength to ensure we are persuasive in peace, decisive in war, and preeminent in any form of conflict.

Joint Vision 2020 builds on the foundation and maintains the momentum established with *Joint Vision 2010*. It confirms the direction of the ongoing transformation of operational capabilities, and emphasizes the importance of



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