

COORDINATION DRAFT

JOINT VISION 2020

18 Feb 00 VERSION

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1. Introduction

2 *Joint Vision 2020* establishes the vector for the continuing
3 transformation of America's Armed Forces. The US military today is a
4 force of superbly trained men and women who are ready to deliver victory
5 for our nation. In support of the objectives of our National Security
6 Strategy, they are routinely employed to **shape** the international security
7 environment, and they stand ready to **respond** across the full range of
8 potential military operations. This force represents an investment that
9 for decades was focused on prevailing in the Cold War. The experience of
10 the 1990s tells us that our objectives for the upcoming decades will not
11 be as straightforward. Today we face a future with a wide range of
12 potential threats and a similarly wide range of interests and
13 opportunities. If our Armed Forces are to be as ready and responsive in
14 2020 as they are today, we must continue to invest in and develop our
15 military capabilities. We must **prepare now** to continue to transform our
16 force for this uncertain future.

17 The explosive growth of information technology, coupled with the
18 expertise and imagination of our people, will enable our forces to achieve
19 the new levels of effectiveness in joint warfighting required to meet the
20 emerging challenges of the future security environment. Focused on
21 achieving dominance across the full range of military operations, this
22 document builds upon the operational concepts of dominant maneuver,
23 precision engagement, focused logistics, and full dimensional protection
24 first introduced in *Joint Vision 2010*. The descriptions of these

25 capabilities provide a common direction for our Services and combatant
26 commanders-in-chief (CINCs) to develop the contributions to the joint
27 team that will meet the wide-ranging challenges of the 21st Century.

28 This vision is our view of the way ahead and is focused on the joint
29 force in 2020. The date defines a general analytical framework rather
30 than serving as a definitive estimate or deadline. The vision is not solely
31 a reaction to threats, but the analysis at the foundation of the document
32 is informed by the best available intelligence estimates. Additionally, the
33 purpose of this document is not to enumerate weapon, communication,
34 or other systems we will develop or purchase. Rather, the purpose is to
35 describe in broad terms the operational capabilities and human talent
36 that will be required for the joint force to succeed across the full range of
37 military operations and accomplish its mission in 2020 and beyond. In
38 describing those capabilities, the vision provides a focus for the wide-
39 ranging program of exercises and experimentation being conducted by
40 the Services and CINCs.

41 Our goal is a joint force persuasive in peace, decisive in war,
42 preeminent in any form of conflict. Attainment of that goal requires the
43 steady infusion of new technology and the modernization and
44 replacement of equipment. But materiel superiority alone is not
45 sufficient. Equally important is the development of doctrine,
46 organizations, training and education, leaders, people, and facilities that
47 effectively take advantage of the technology. The parallel evolution of all
48 these factors is necessary to achieve our goal.

49 What do we see as the drivers of this evolution? First, in 2020 the
50 nation will face a wide range of challenges and will require a military that
51 can both win wars and contribute to peace. The United States will
52 continue to be a nation with global interests and responsibilities, and
53 there is no indication that threats to those interests and responsibilities,
54 or our allies, will disappear.

55 Second, over the next two decades the continued development and
56 proliferation of information technologies will substantially change the
57 conduct of military operations, and we are not alone in making use of the
58 advantages conferred by these advances. These changes in the
59 information environment make information superiority vital to the
60 transformation of joint command and control and the operational
61 capabilities of the joint force.

62 Third, the continuing broad range of military operations will place
63 a premium on the successful integration of multinational and
64 interagency partners and the interoperability of processes, organizations,
65 and systems.

66 Finally, we believe the joint force, because of its flexibility and
67 responsiveness, will remain the key to operational success in the future.
68 The integrated employment of the capabilities of the Total Force
69 increases the options for the commander and complicates the choices of
70 our opponents. To build the most effective force for 2020 we must be
71 fully joint: intellectually, operationally, organizationally, and technically.

72 **2. Future Conflict**

73 **STRATEGIC CONTEXT**

74 Three aspects of the world of 2020 have significant implications for
75 the US Armed Forces. First, the United States will continue to have
76 global interests and will be engaged with a variety of regional actors.
77 Transportation, communications, and computer technology will continue
78 to evolve and foster expanded economic ties and awareness of
79 international events. Our security and economic interests, as well as our
80 political values, will provide the impetus for engagement with
81 international partners. The joint force of 2020 must be prepared to “win”
82 across the full range of military operations in any part of the world, must
83 be ready to operate with multinational forces, and must be ready to
84 coordinate military operations as necessary with US government agencies
85 and international organizations.

86 Second, potential adversaries will have access to the global
87 commercial industrial base and thus much of the same technology as the
88 US military. We will not necessarily possess a wide technological
89 advantage over our adversaries. Increased availability of commercial
90 satellites, digital communications, and the public Internet all give
91 adversaries new capabilities at a relatively low cost. We should not
92 expect opponents in 2020 to be fighting with strictly “industrial age”
93 tools. Our advantage must come from people, doctrine, organizations,
94 and training that take advantage of technology to achieve superior
95 warfighting effectiveness.

96 Third, as our capabilities evolve we should expect our potential
97 adversaries to adapt. We have superior conventional warfighting
98 capabilities and effective nuclear deterrence today, but this favorable
99 military balance is not static. In the face of such strong conventional
100 capabilities, the appeal of asymmetric approaches to conflict and the
101 focus on the development of niche capabilities will increase. By
102 developing and using approaches that avoid US strengths and exploit
103 potential vulnerabilities, adversaries will attempt to create conditions
104 that effectively delay, deter, or counter the application of US military
105 capabilities.

106 The potential of such asymmetric approaches is perhaps the most
107 serious danger the US faces in the immediate future – and this danger
108 includes direct threats to US citizens and territory. The asymmetric
109 methods and objectives of an adversary are often far more important
110 than the relative technological imbalance, and the psychological impact
111 of an attack may far outweigh the actual physical damage inflicted. An
112 adversary may pursue an asymmetric advantage on the tactical,
113 operational, or strategic level by identifying key vulnerabilities and
114 devising asymmetric concepts to strike them. To complicate matters, our
115 adversaries may pursue a combination of asymmetries, or the US may
116 face a number of adversaries who, in combination, create an asymmetric
117 threat. Regardless of the specifics, asymmetric threats are transient and
118 ever-shifting, and the US Armed Forces must maintain the capabilities
119 necessary to deter, defend against, and defeat any adversary who
120 chooses such an approach. The focus of our effort in meeting the

121 challenges of the strategic environment in 2020 is full spectrum
122 dominance.

123

124 **FULL SPECTRUM DOMINANCE**

125 The ultimate goal of our military force is to accomplish the
126 objectives directed by the National Command Authority. For the joint
127 force of the future, this goal will be achieved through full spectrum
128 dominance – the ability of US forces, operating unilaterally or in
129 combination with multinational partners, to defeat any adversary or
130 control any situation across the full range of potential military
131 operations. The full range of operations includes maintaining a posture
132 of strategic deterrence. It includes conflict involving weapons of mass
133 destruction, major theater wars, regional conflicts, and smaller scale
134 contingencies. It includes those ambiguous situations residing between
135 peace and war, such as peace keeping and peace enforcement
136 operations. And it includes non-combat humanitarian relief operations.
137 Full spectrum dominance also implies that US forces are able to conduct
138 these operations with various combinations of forces, tailored to the
139 specific situations, through all operational domains – space, sea, land,
140 air, and information. But the use of the word “dominance” does not
141 mean that US forces will be the dominant presence in every situation or
142 that the US intends to dominate allies, friends, or multinational partners.
143 Finally, the global nature of US interests and obligations implies that full
144 spectrum dominance will continue to depend on overseas presence and
145 power projection capabilities.

146 Achieving full spectrum dominance means the joint force will fulfill
147 its primary purpose – victory in war, as well as success across the full
148 range of operations. But it does not mean that we will win without cost
149 or difficulty. Conflict results in casualties despite our best efforts to
150 minimize them, and will continue to do so when the force has achieved
151 full spectrum dominance. Additionally, friction is inherent in military
152 operations. The joint force of 2020 will create a “frictional imbalance” in
153 its favor by applying the concepts envisioned in this document, but the
154 fundamental sources of friction and fog cannot be eliminated.

155

Sources of Friction

- Effects of danger and exertion
- Existence of uncertainty and chance
- Unpredictable actions of other actors
- Frailties of machines and information
- Humans

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161 Full spectrum dominance is an ambitious goal. The on-going
162 transformation to the operational capabilities of dominant maneuver,
163 precision engagement, full dimensional protection, and focused logistics
164 provides the means of reaching it. The integrated application of these
165 four operational concepts, as first described in *JV 2010*, will ensure the
166 joint force commander has the means of achieving decisive outcomes at
167 any point on the range of operations. The transformation envisioned
168 involves the melding of suitable organizational and doctrinal changes
169 with advances in technology, and especially with the anticipated
170 qualitative changes in the information environment. In this way, the four

171 operational concepts are tightly interwoven – each dependent on the
172 others, and each contributing to attainment of the others. Their relative
173 importance will vary depending on the mission, the forces available, the
174 political guidance, the type of operation, and the overall operational
175 environment or capabilities of potential adversaries.

176 The process of creating the joint force of the future must be flexible
177 – to react to changes in the strategic environment and the adaptations of
178 potential enemies; to take advantage of new technologies; and to account
179 for variations in the pace of changes in organization, doctrine, and
180 personnel. The source of that flexibility is the synergy of individual
181 Service competencies, melded together in the joint team. The
182 requirement for global operations, the ability to counter adversaries who
183 possess weapons of mass destruction, and the need to shape ambiguous
184 situations at the low end of the range of operations will present special
185 challenges en route to achieving full spectrum dominance. These
186 challenges will require a Total Force comprised of well-educated,
187 motivated, and competent people who can adapt to the many demands of
188 future joint missions. Regardless of the challenges and the breadth of
189 this overarching concept, full spectrum dominance is the goal for
190 developing the future joint force.

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192

INFORMATION SUPERIORITY

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Information environment – the aggregate of individuals, organizations, and systems that collect, process, or disseminate information, including the information itself. (JP1-02)

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Information superiority – the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same. (JP1-02) Information

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197

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200 Information, information processing, and communications
201 networks are at the core of every military activity. Throughout history,
202 military leaders have regarded information superiority – the mastery of
203 the information environment – as a key enabler of victory. However, the
204 on-going “information revolution” is creating not only a quantitative, but
205 a qualitative change in the information environment that by 2020 will
206 result in profound changes in the conduct of military operations. In fact,
207 advances in information capabilities are proceeding so rapidly that there
208 is a risk of outstripping our ability to capture ideas, formulate
209 operational concepts, and develop the capacity to assess results. While
210 the goal of achieving information superiority will not change, the nature,
211 scope, and “rules” of the quest are changing radically.

212 The qualitative change in the information environment extends the
213 conceptual underpinnings of information superiority beyond the mere
214 accumulation of more, or even better, information. The word
215 “superiority” implies a state or condition of imbalance in one’s favor.
216 Information superiority is transitory in nature and must be created and
217 sustained by the joint force through the conduct of information
218 operations. However, the creation of information superiority is not an
219 end in itself. The joint force must be able to take advantage of the
220 imbalance to achieve “decision superiority” – better decisions arrived at

221 faster than an opponent can react, or in a non-combat situation, at a
222 tempo that allows the force to shape the situation or react to changes
223 and accomplish its mission. Decision superiority does not automatically
224 result from information superiority. Organizational and doctrinal
225 adaptation, relevant training and experience, and the proper command
226 and control mechanisms and tools are equally necessary. We must also
227 remember that information superiority neither equates to perfect
228 information, nor does it mean the elimination of the fog of war.
229 Information systems, processes, and operations add their own sources of
230 friction and fog to the operational milieu.

231 The evolution of information technology will increasingly permit us
232 to integrate the traditional forms of information operations (e.g.
233 deception, electronic warfare, psychological operations) with
234 sophisticated all-source intelligence, surveillance, and reconnaissance in
235 a fully synchronized information campaign. The global information grid
236 will support this integrated approach to information operations by
237 providing the networks required to globally link sensors, shooters, and
238 decision makers. The joint force commander's portion of the information
239 environment will thus encompass all information resources necessary to
240 conduct joint, multinational, and interagency operations. Realization of
241 the full potential of these changes requires the continued evolution of
242 organizations and doctrine and the development of relevant training to
243 sustain a comparative advantage in the information environment.
244 Regardless of the uncertainties associated with the ultimate outcome of
245 the information revolution, information superiority is fundamental to the

246 transformation of the operational capabilities of the joint force. The joint
247 force of 2020 will use information superiority to achieve decision
248 superiority, to support advanced command and control capabilities, and
249 to reach the full potential of dominant maneuver, precision engagement,
250 full dimensional protection, and focused logistics. The breadth and pace
251 of this evolution demands flexibility and a readiness to innovate.

252

253 **INNOVATION**

254 *Joint Vision 2010* identified technological innovation as a vital
255 component of the transformation of the joint force. Throughout the
256 industrial age, the United States has relied upon its capacity for
257 technological innovation in support of military operations, and the need
258 to do so will continue. It is important, however, to broaden our focus
259 beyond technology and capture the importance of innovation in general.

260 Innovation, in its simplest form, is the combination of new “things”
261 with new ways to carry out tasks. The ideas in *JV 2010* meet this
262 definition, and they form a vision for integrating doctrine, tactics,
263 training, supporting activities, and technology into new operational
264 concepts. The innovations that determine the core capabilities of the
265 future joint force will result from an understanding of what future
266 conflict and military operations will be like, and a view of what the joint
267 force must do in order to accomplish its assigned missions.

268 The management of innovation requires continuous learning – a
269 process of interaction and exchange that evaluates goals, exercises,
270 experiments, and simulations – and that must include feedback

271 mechanisms. We must foster the innovation necessary to create the joint
272 force of the future – not only with decisions regarding future versus
273 present force structure and budgets, but also in a tolerance for errors
274 and failures in the experimentation process. A low tolerance makes it
275 unlikely that the force will identify and nurture the most relevant and
276 productive aspects of new concepts, capabilities, and technology. A high
277 tolerance runs the risk of wasting time and resources, and of resulting in
278 failure on the battlefield that costs lives. All individuals and
279 organizations charged with experimentation in support of the evolution of
280 the joint force must be cognizant of these issues.

281 There is a high degree of uncertainty inherent in the pursuit of
282 innovation. The key to coping with that uncertainty is the accumulation
283 of as much information as possible – regarding the efficacy of new ideas,
284 the potential drawbacks to new concepts, the capabilities of potential
285 adversaries, the costs versus benefits of new technologies, and the
286 organizational implications of new capabilities – all closely linked to an
287 analysis of the economic, political, and technological factors of the
288 anticipated security environment. By creating a process for managing
289 innovation, the joint force also creates its best opportunity for coping
290 with the increasing pace of change in the overall environment in which it
291 functions. Although changing technology is a primary driver of
292 environmental change, it is not the only one. The search for innovation
293 must encompass the entire context of joint operations – which means the
294 joint force must explore changes in doctrine, organization, training and
295 education, materiel, leadership, personnel, and facilities as well as

296 technology. Ultimately, the goal is reasonable judgments with enough
297 flexibility to recover from errors and unforeseen circumstances.

298 **3. Conduct of Joint Operations**

299 The complexities of the future security environment demand that
300 the US be prepared to face a wide range of threats of varying levels of
301 intensity. Success in countering these threats will require the skillful
302 integration of the strengths and capabilities of the Services into a
303 seamless joint force tailored to the specific situation and objectives.
304 Commanders must be afforded the opportunity to achieve the level of
305 effectiveness and synergy necessary to conduct decisive operations
306 across the entire range of military operations. When combat operations
307 are required, they must be able to present an enemy with an
308 overwhelming array of capabilities against which to defend. Other
309 complex contingencies such as humanitarian relief or peace keeping and
310 enforcement operations will require a rapid, integrated response to
311 achieve national objectives in the required timeframe. Some situations
312 will require the capabilities of only one Service, but in most cases, a joint
313 force comprised of both Active and Reserve components will be employed.

314 The complexity of future operations also requires that, in addition
315 to operating jointly, our forces have the capability to effectively
316 participate as one element of a unified effort. This integrated approach
317 brings to bear all elements of national power – military, diplomatic,
318 information, and economic – to achieve our national objectives
319 unilaterally when necessary, while making optimum use of the skills,
320 resources, and legitimacy provided by multinational military forces,
321 regional and international organizations, non-governmental

322 organizations, and private voluntary organizations when possible.
323 Participation by the joint force in operations supporting civil authorities
324 will also increase in importance due to emerging threats to the US
325 homeland such as terrorism and weapons of mass destruction.

326

327 **PEOPLE**

328 The core of the joint force of 2020 will continue to be an All
329 Volunteer Force composed of individuals of exceptional dedication and
330 ability. Their quality will matter as never before as the members of our
331 Total Force confront a diversity of missions and technological demands
332 that call for adaptability, innovation, precise judgment, and forward
333 thinking. The nation will continue to require individuals of exceptional
334 dedication and character, committed to an ethic of selfless service.

335 In order to recruit and retain such outstanding people, the joint
336 force of 2020 will face a number of challenges. Declining birth rates and
337 expanding civilian education and employment opportunities will reduce
338 the number of candidates available for military service. A continued
339 strong economy will require us to offer suitable standards of living and a
340 competitive compensation strategy. The increasing percentage of
341 members with dependents will require a commitment to family-oriented
342 community support programs and a stable quality of life, as well as close
343 monitoring of the impact of the operations tempo. Finally, the evolution
344 of new functional areas, such as information operations, will require
345 development of appropriate career progression and leadership
346 opportunities for specialists in those fields.

347 Both the missions and technology of 2020 will demand service
348 members trained extensively in a variety of skills. In addition to the
349 skills inherent to his or her Service and specialty, every member of the
350 Total Force must be prepared to apply that expertise as a member of the
351 joint team. The role of the Services is critical in perfecting their core
352 competencies. The joint force commander is thereby provided the ability
353 to create a powerful, synergistic force capable of succeeding across the
354 entire range of operations. The tactics of information operations, the
355 coordination of interagency and multinational operations, as well as the
356 complexity of the modern tools of war all require people who are both
357 talented and trained to exacting standards. The rapid and dispersed
358 movement of forces to conduct dominant maneuver has significant
359 implications for the joint force. Independent operations require men and
360 women who are part of a cohesive team. They will be challenged by
361 significant responsibilities at low levels in the organization and must be
362 capable of making decisions with both operational and strategic
363 implications.

364 Finally, achieving success across the full range of military
365 operations implies a force that is adaptable. Our service members must
366 have the mental agility to transition from preparing for war to enforcing
367 peace. Training and experience will create a force ready to rapidly deploy
368 to any point on the globe and operate effectively. The service members of
369 2020 will not only be expert in their specialties but will be able to apply
370 that expertise to a wide range of missions.

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

376

377 INTEROPERABILITY

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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)

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382 Interoperability is the foundation of effective joint, multinational,
383 and interagency operations. The joint force has made, and will continue
384 to make, significant progress toward achieving an optimum level of
385 interoperability. Further improvements will include the refinement of
386 joint doctrine as well as continued development of commonly used
387 technology and processes. Exercises, personnel exchanges, agreement
388 on standardized operating procedures, individual training and education,
389 and planning will serve to further enhance and institutionalize these
390 capabilities. Technical interoperability is a mandate for the joint force of
391 2020 – in terms of communications, common logistics items, and
392 information sharing. Information systems and equipment that enable a
393 common relevant operational picture must work from a shared
394 “backbone” or network that can be accessed by any appropriately cleared
395 participant.

396 Although the technological aspects of interoperability are essential,
397 they are not sufficient to ensure effective operations. There must be a
398 suitable focus on procedural and organizational elements, and decision
399 makers at all levels must understand each other's capabilities and
400 constraints. Training and education, experience and exercises,
401 cooperative planning, and skilled liaison at all levels of the joint force will
402 overcome the barriers of organizational culture and differing priorities.

403 The future joint force will have the correct embedded technologies
404 and adaptive organizational structures. Trained and experienced people
405 will foster the relationships that lead to the development of compatible
406 processes and procedures, enable collaborative planning, and adapt as
407 necessary to specific crisis situations. These features are not only vital
408 to the joint force, but to multinational and interagency operations as
409 well.

410

411 **Multinational Operations**

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

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416 Since our potential multinational partners will have varying levels
417 of technological capability, a tailored approach to interoperability that
418 accommodates a wide range of needs and capabilities is necessary. Our
419 more technically advanced allies will have systems and equipment that
420 are, essentially, compatible, enabling them to interface and share
421 information with our forces at all levels. However, we must also be

422 capable of operating with allies and coalition partners who may be
423 technologically incompatible – especially at the tactical level.
424 Additionally, many of our future partners will have significant niche
425 capabilities that may be integrated into a common operating scheme.
426 The existence of these relationships does not imply access to information
427 without constraints. We and our multinational partners will continue to
428 use suitable judgment regarding the protection of sensitive information
429 and information sources.

430 In all cases, effective command and control is the primary means
431 of successfully extending the joint vision to multinational operations.
432 Technological developments that tie together the information systems of
433 partners will provide the link that enables a common relevant operational
434 picture and improves command and control. However, the sharing of
435 information needed to maintain the tempo of integrated multinational
436 operations also relies heavily on a shared understanding of operational
437 procedures and compatible organizations. Thus, the future joint force
438 should have a liaison capability that capitalizes on regional experience
439 and understanding. Developing this capability may require
440 organizational change, in addition to training and education.

441

442 **Interagency Operations**

443 **Interagency Coordination** – within the context of Department of
444 Defense involvement, the coordination that occurs between elements of
445 the Department of Defense and engaged US Government agencies, non-
446 governmental organizations, private voluntary organizations, and
447 regional and international organizations for the purpose of accomplishing
448 an objective. (JP1-02)

449 **International Organizations** – organizations with global influence, such
450 as the United Nations and the International Committee of the Red Cross.
451 (JP1-02)

452 **Non-Governmental Organizations** – transnational organizations of
453 private citizens that maintain a consultative status with the Economic
454 and Social Council of the United Nations. Non-governmental
455 organizations may be professional associations, foundations,
456 multinational businesses, or simply groups with a common interest in
457 humanitarian assistance activities (development and relief). "Non-
458 governmental organizations" is a term normally used by non-United
459 States organizations. (JP1-02)

460 **Private Voluntary Organizations** – private, nonprofit humanitarian
461 assistance organizations involved in development and relief activities.
462 Private voluntary organizations are normally United States-based.
463 "Private voluntary organization" is often used synonymously with the
464 term "Non-governmental organizations." (JP1-02)

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466 The primary challenge of interagency operations is to achieve unity
467 of effort despite the diverse cultures, competing interests, and differing
468 priorities of the participating organizations, many of whom guard their
469 relative independence, freedom of action, and impartiality. Additionally,
470 these organizations may lack the structure and resources to support
471 extensive liaison cells or integrative technology. In this environment and
472 in the absence of formal command relationships, the future joint force
473 must be proactive in improving communications, planning,
474 interoperability, and liaison with potential interagency participants.
475 These factors are important in all aspects of interagency operations, but
476 particularly in the context of direct threats to citizens and facilities in the
477 US homeland. Cohesive interagency action is vital to deterring,
478 defending against, and responding to such attacks, whether state-
479 sponsored or not. The joint force must be prepared to follow the lead of

480 designated civilian agencies, or take the lead when ordered, in a fully
481 integrated effort to meet the needs of US citizens and accomplish the
482 objectives specified by the National Command Authority.

483 Sharing information with appropriately cleared participants and
484 integration of information from all sources is essential. All organizations
485 have unique information assets that can contribute to the common
486 relevant operational picture and support unified action. They also each
487 have unique information requirements. Understanding each other's
488 requirements and assets is crucial. More importantly, innovative
489 organizations, with trained and experienced liaisons, must be developed
490 to support long-term relationships, collaborative planning in advance of
491 crises, and compatible processes and procedures with potential
492 interagency partners.

493

OPERATIONAL CONCEPTS

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Dominant Maneuver

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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, and space forces, capable of scaling and massing force or forces and the effects of fires as required for either combat or non-combat operations, will secure advantage across the range of military operations through the application of information, deception, engagement, mobility and counter-mobility capabilities.

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The joint force capable of dominant maneuver will possess

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unmatched agility in positioning and repositioning tailored forces from

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widely dispersed locations to achieve operational objectives quickly and

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decisively. The employment of dominant maneuver may lead to

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achieving the objectives directly and also facilitates employment of the

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other operational concepts. For example, dominant maneuver may be

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employed to dislodge enemy forces so they can be destroyed through

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precision engagement. At times, achieving positional advantage will be a

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function of operational maneuver over strategic distances. Overseas or

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US-based units will mass forces or effects directly from their home bases

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to the operational theater. Information superiority will support the

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commander in adaptive and concurrent planning; coordinating widely

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dispersed units; obtaining timely feedback on the status, location, and

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activities of subordinate units; and anticipating the course of events

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leading to mission accomplishment. The joint force will be capable of

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planning and conducting dominant maneuver in cooperation with

520 interagency and multinational partners with varying levels of
521 commitment and capability.

522 The capability to mass force or forces and the fires of dispersed
523 forces allows the joint force commander to establish control of the
524 battlespace at the proper time and place, with the proper forces. In a
525 conflict, this ability to attain positional advantage allows the commander
526 to employ overwhelming combat power that will compel an adversary to
527 react from a position of disadvantage or quit. In other situations, it
528 allows the force to occupy key positions to shape the course of events
529 and react decisively if hostilities erupt.

530 Beyond the actual physical presence of the force, dominant
531 maneuver creates an impact in the minds of opponents and others in the
532 operational area. That impact is a tool available to the joint force
533 commander across the full range of military operations. In a conflict for
534 example, the presence of a decisive force might well cause an enemy to
535 surrender after minimal resistance. During a peacekeeping mission, it
536 may provide motivation for good-faith negotiations or prevent the
537 instigation of civil disturbances. In order to achieve such an impact, the
538 commander will use information operations as a force multiplier by
539 making the available combat power apparent without the need to
540 physically move elements of the force. The joint force commander will be
541 able to take advantage of the potential and actual effects of dominant
542 maneuver to gain the greatest benefit.

543

544 **Precision Engagement**

545 **Precision Engagement** is the ability of joint forces to: locate, surveil,
546 discern, and track objectives or targets; select, organize, and use the
547 correct systems; generate desired effects; assess results; and reengage
548 with decisive speed and overwhelming operational tempo as required,
549 throughout the full range of military operations.
550

551 The pivotal characteristic of precision engagement is the linking of
552 sensors, delivery systems, and effects. In the joint force of the future,
553 this linkage will take place across Services and will incorporate the
554 applicable capabilities of multinational and interagency partners when
555 appropriate. The resulting system of systems will provide the
556 commander the broadest possible range of capabilities in responding to
557 any situation, including both kinetic and non-kinetic means of creating
558 the desired effects.

559 The concept of precision engagement extends beyond precisely
560 striking a target with explosive ordnance. Information superiority will
561 enhance the capability of the joint force commander to understand the
562 situation, select a course of action and the forces to execute it, accurately
563 assess the effects of that action, and re-engage as necessary while
564 minimizing collateral damage. During conflict, the commander will use
565 precision engagement to obtain lethal and non-lethal effects in support of
566 the objectives of the campaign. This action could include destroying a
567 target using conventional forces, inserting a special operations team, or
568 even the execution of a precision combat search and rescue mission.
569 The commander may also employ non-kinetic weapons, particularly in
570 the arena of information operations where the targets might be key

571 enemy leaders or troop formations, or the opinion of an adversary
572 population.

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

581

582 **Focused Logistics**

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

592

593 Focused logistics will provide military capability by ensuring
594 delivery of the right equipment, supplies and personnel, in the right
595 quantities, to the right place, at the right time to support operational
596 objectives. The transformation to focused logistics, already underway,
597 will result from revolutionary improvements in information systems,
598 innovation in organizational structures, reengineered processes, and
599 advances in transportation technologies.

600 Focused logistics will effectively link all logistics functions and
601 units through advanced information systems that integrate real-time
602 total asset visibility with a common operational picture. These systems
603 will incorporate enhanced decision support tools that will improve
604 analysis, planning, and anticipation of warfighter requirements. They
605 will also provide a more seamless connection to the commercial sector to
606 take advantage of applicable advanced business practices and
607 commercial economies. Combining these capabilities with innovative
608 organizational structures and processes will result in joint centralized
609 management of the entire system and provide precise real-time control of
610 the logistics pipeline to support the joint force commander's priorities.
611 The increased speed, capacity, and efficiency of advanced transportation
612 systems will further improve deployment, distribution, and sustainment.
613 Mutual support relationships and collaborative planning will enable
614 optimum cooperation with multinational and interagency partners.

615 The result for the joint force of the future will be an improved link
616 between operations and logistics resulting in precise time-definite
617 delivery of assets to the warfighter. This substantially improved
618 operational effectiveness and efficiency, combined with increasing
619 warfighter confidence in these new capabilities, will concurrently reduce
620 sustainment requirements and the vulnerability of logistics lines of
621 communication, while appropriately sizing, and potentially reducing, the
622 logistics footprint. The concept of focused logistics will effectively
623 support the joint force in combat and provide the primary operational

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

626

627 **Full Dimensional Protection**

628 **Full-Dimensional Protection** is the ability of the joint force to protect its
629 personnel and other assets required to decisively execute assigned tasks.
630 Full dimensional protection is achieved through the tailored selection
631 and application of multi-layered active and passive measures, within the
632 dimensions of air, land, sea, space, and information, across the range of
633 military operations with an acceptable level of risk.
634

635 Our military forces must be capable of conducting decisive
636 operations despite our adversaries' use of a wide range of weapons
637 (including weapons of mass destruction), the conduct of information
638 operations or terrorist attacks, or the presence of asymmetric threats
639 during any phase of these operations. Our people and the other military
640 and non-military assets that are needed for the successful conduct of
641 operations must be protected wherever they are located. Full
642 dimensional protection exists when the joint force can decisively achieve
643 its mission with an acceptable degree of risk in both the physical and
644 information domains.

645 The capability for full dimensional protection incorporates a
646 complete array of both combat and non-combat actions in offensive and
647 defensive operations, enabled by information superiority. It will be based
648 upon defensive measures, security procedures, antiterrorism measures,
649 enhanced intelligence assessments, emergency preparedness, heightened
650 security awareness, and proactive engagement strategies. Additionally, it
651 will extend beyond the immediate theater of operations to protect our

652 reach-back, logistical, and key capabilities in other locations. There is a
653 critical need for protection of the information content and systems vital
654 for operational success, including increased vigilance in
655 counterintelligence and information security. The joint force of 2020 will
656 integrate protective capabilities from multinational and interagency
657 partners when available, as well as responding to their requirements
658 when possible. Commanders will thoroughly assess and manage risk as
659 they apply protective measures to specific operations, ensuring an
660 appropriate level of safety, compatible with other mission objectives, is
661 provided for all assets.

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

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INFORMATION OPERATIONS

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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 non-combat or ambiguous situation to protect one's own information and information systems as well as those taken to influence target information and information systems.

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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, battlefield dominance, command and control warfare, systemic disruption, or systemic destruction
- Nature of situation – peace, crisis, or conflict
- Potential actors – nations, terrorists, criminal organizations, non-governmental organizations, or individuals
- Types of systems affected – military-unique, dual use, national information infrastructure, global, humans

695 The anticipated influence of the information revolution permeates
696 this vision – especially the role of information superiority as the key
697 enabler of the transformation of the joint force. To achieve information
698 superiority, the force must be capable of conducting information
699 operations, the purpose of which is to facilitate and protect US decision
700 making processes, and in a conflict, degrade those of an adversary. The
701 joint force must be capable of effective integration of information
702 operations, supported by communications and intelligence, within
703 everyday operations. While activities and capabilities employed to
704 conduct information operations are traditional functions of military
705 forces, the pace of change in the information environment dictates that
706 we expand this view and explore broader information operations
707 strategies and concepts. We must recognize that information operations
708 are continuous, not limited to conflict situations, and not limited to the
709 traditional concept of an adversary. Additionally, the activities
710 associated with information operations are wide-ranging – from physical
711 destruction to psychological operations to computer network attack. The

712 task of integrating information operations within a campaign strategy is
713 complicated by the need to understand the many variables involved
714 (summarized in box).

715 Our understanding of the interrelationships of these variables and
716 their impact on military operations will determine the nature of
717 information operations in 2020. The joint force commander will conduct
718 information operations whether facing an adversary during a conflict or
719 engaged in humanitarian relief operations. Such operations will be
720 synchronized with those of multinational and interagency partners as the
721 situation dictates. New offensive capabilities such as information
722 dissemination tools for use in psychological operations (internet, global
723 broadcast television) or computer network attack techniques (viruses,
724 denial of service) are evolving. Activities such as information assurance,
725 computer network defense, and counter-deception will be used to defend
726 decision making processes by neutralizing perception management and
727 intelligence collection efforts, and attacks on our information systems.
728 Because the ultimate target of information operations is the human
729 decision maker, the joint force commander will have difficulty assessing
730 accurately the effects of those operations. This problem of “battle
731 damage assessment” for information operations is difficult and must be
732 explored through exercises and rigorous experimentation.

733 The continuing evolution of information operations and the global
734 information environment holds two significant implications. First,
735 operations within the information domain will become as important as
736 those conducted in the domains of sea, land, air, and space. Such

737 operations will be inextricably linked to focused logistics, full
738 dimensional protection, precision engagement, and dominant maneuver,
739 as well as joint command and control. At the same time, information
740 operations may evolve into a separate mission area requiring
741 appropriately designed organizations and trained specialists.
742 Improvements in doctrine, organization, and technology may lead to
743 decisive outcomes resulting primarily from information operations.
744 Second, there is significant potential for asymmetric engagements in the
745 information domain. The US has enjoyed a distinct technological
746 advantage in the information environment and will likely continue to do
747 so. However, as potential adversaries reap the benefits of the
748 information revolution, the comparative advantage for the US and its
749 partners will become more difficult to maintain. Additionally, our ever-
750 increasing dependence on information processes, systems, and
751 technologies adds potential vulnerabilities that must be defended.

752

753 **JOINT COMMAND AND CONTROL**

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755 **Command and control** – the exercise of authority and direction by a
756 properly designated commander over assigned and attached forces in
757 the accomplishment of the mission. Command and control functions
758 are performed through an arrangement of personnel, equipment,
759 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)

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760 Command and control is the exercise of authority and direction
761 over the joint force. It is necessary for the integration of operational and
762 Service capabilities into the effective conduct of joint operations. The
763 continued importance of multinational and interagency aspects of
764 operations adds complexity and heightens the challenge. Command and
765 control includes planning, directing, coordinating, and controlling forces
766 and operations, and is focused on the effective execution of the
767 operational plan; but the central function is decision making.

768 Command and control is most effective when decision superiority
769 exists – when the joint force commander is able to make better and faster
770 decisions than an adversary. When there is no opponent, decision
771 superiority occurs when the commander’s decision cycle is fast enough
772 to anticipate and cope with changes in the situation as they arise.
773 Information superiority is pivotal to the creation of decision superiority
774 and is, therefore, a fundamental enabler for joint command and control,
775 just as it is for focused logistics, full dimensional protection, dominant
776 maneuver, and precision engagement. We must remember, however,
777 that decision superiority is not merely a function of information
778 superiority, but also results from the commander’s experience and
779 judgment, the expertise of supporting staffs and other organizations, and
780 the efficiency of associated processes. While changes in the information
781 environment have led some to focus on the contribution of information
782 superiority to command and control, it is equally necessary to
783 understand the complete realm of command and control decision
784 making, especially the “human in the loop.”

785 In the joint force of the future, command and control will remain
786 the primary integrating and coordinating function for operational
787 capabilities and service components. As the nature of military
788 operations evolves, there is a need to evaluate continually the nature of
789 command and control organizations, mechanisms, systems, and tools.
790 There are two major issues to address – command structures and
791 processes, and the information systems and technologies that are best-
792 suited to support them. They encompass a host of related ideas and
793 desired capabilities.

794 -- Expanding roles for multinational and interagency partners
795 will require collaborative planning capabilities, technological
796 compatibility/interoperability, and mechanisms for efficient
797 information sharing.

798 -- Joint force headquarters will be dispersed and mobile to
799 enhance survivability and positioning, and capable of
800 coordinating dispersed units and operations. Subordinate
801 headquarters will be small, agile, mobile, dispersed, and
802 networked.

803 -- The staffs that support commanders must be organized and
804 trained to take advantage of new capabilities. Commanders
805 and staffs must also be capable of command and control in the
806 face of technology failure.

807 -- Faster operations tempos, more weapons choices, and
808 greater weapons ranges will require continuous, simultaneous
809 planning and execution at all levels. Commanders will be able

810 to formulate and disseminate intent based upon up-to-date
811 knowledge of the situation existing in the battlespace.
812 -- Commanders will need a broader understanding of new
813 operational concepts and new (often highly automated)
814 supporting tools in order to be capable of flexible, adaptive
815 coordination and direction of both forces and sensors.
816 -- Finally, as these and other changes take place over time, we
817 must carefully examine three aspects of the human element of
818 command and control. First, leaders of the joint force must
819 analyze and understand the meaning of unit cohesion in the
820 context of the small, widely dispersed units that are now
821 envisioned. Second, decision makers at all levels must
822 understand the implication of new technologies that operate
823 continuously in all conditions, when human beings are
824 incapable of the same endurance. Third, as new information
825 technologies, systems, and procedures make the same detailed
826 information available at all levels of the chain of command,
827 leaders must understand the implications for decision making
828 processes, the training of decision makers at all levels, and
829 organizational patterns and procedures. The potential for over-
830 centralization of control and the capacity for relatively junior
831 leaders to make decisions with strategic impact are of
832 particular importance.

833 These issues will serve as a catalyst for changes in doctrine,
834 materiel, organization, people, training, and leaders.

835 It has often been said that command is an art and control is a
836 science – a basic truth that will remain true in the future. Thinking
837 about command and control must be conceptually based, rather than
838 focused on technology or materiel. Joint command and control is a
839 nexus – a point of connection. It serves as a focal point between humans
840 and technology, between the operational concepts, and between the
841 capabilities of the Services. The development of effective joint command
842 and control for the future requires rigorous and wide-ranging
843 experimentation, focused especially on organizational innovation and
844 doctrinal change.

845 4. Implementation

846 From Vision to Experimentation

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- 848 • Joint Vision 2010 (1996)
- 849 • Concept for Future Joint Operations (1996-7)
- 850 • 21st Century Challenges and Desired Operational Capabilities (1997)
- 851 • Joint Warfighting Experimentation Program established, USACOM
- 852 (JFCOM) as Executive Agent (1998)
- 853 • Joint Implementation Master Plan (1998)
- 854 • CJCSI 3170, Requirements Generation System (1999)
- 855 • JFCOM Joint Experimentation Campaign Plans (1999 and 2000)
- 856

857 *Joint Vision 2010* had a profound impact on the development of US
858 military capabilities. By describing those capabilities necessary to
859 achieve success in 2010, we set in motion three important efforts. First,
860 *JV 2010* established a common framework and language for the services
861 to develop and explain their unique contributions to the joint force.
862 Second, we created a process for the conduct of joint experimentation
863 and training to test theory against practice. Finally, we began a process
864 to manage the transformation of doctrine, organizations, training and
865 education, materiel, leadership, personnel, and facilities necessary to
866 make the vision real. *Joint Vision 2020* builds on this foundation of
867 success and will sustain the momentum of these processes.

868 The joint force of 2020 will maximize the synergy obtained from the
869 complementary capabilities of the Services. The foundation of jointness
870 is the strength of their individual competencies pulled together. The
871 experimentation and implementation process supporting the
872 transformation of the joint force is dependent upon Service- and CINC-
873 supported exercises and experimentation conducted by the Service Battle

874 Labs. The Services' and CINCs' visions support the joint vision by
875 providing vectors for these individual efforts that are congruent with the
876 Chairman's vision.

877 To insure unity of effort and continuity for joint experimentation,
878 the Secretary of Defense designated the Commander-in-Chief, Joint
879 Forces Command as the Executive Agent for experimentation design,
880 preparation, execution, and assessment. Annual campaign plans
881 provide focus to this effort and continuity in joint, combined, and Service
882 experimentation. The results of this iterative experimentation cycle are
883 forwarded as comprehensive recommendations for changes in doctrine,
884 organization, training and education, materiel, leadership, personnel,
885 and facilities.

886 The linchpin in the conversion of vision to experimentation to
887 reality is joint training and education – because it is the key to
888 intellectual change. Without intellectual change, there is no change in
889 doctrine, organizations, or leaders. Thus, the implementation process is
890 dependent upon incorporating concepts validated by experimentation
891 into joint professional military education programs and joint exercises.
892 In this way, individual Service members and units become a joint team
893 capable of success across the full range of military operations.

894 The critical challenge in implementing the joint vision is the co-
895 evolution of all elements to effect revolutionary, transforming, and
896 enduring changes to our joint military capabilities. The experimentation
897 and implementation process must include construction of a wide range
898 of scenarios and imaginative conflict simulations to explore the shape of

899 future operations. Such intensive exploration of alternative concepts of
900 operations can help the US military choose innovations that take the
901 greatest advantage of combinations of new ideas and new technologies.
902 The rapid pace of change will drive further development of the
903 experimentation and implementation process in order to rapidly field
904 improved capabilities for the joint force.

905 5. Conclusion

906 The basis of this vision is three-fold: the global interests of the
907 United States and the continuing existence of a wide range of potential
908 threats to those interests; the centrality of information technology to the
909 evolution of not only our own military, but the capabilities of other actors
910 around the globe; and our reliance on the joint force as the foundation of
911 future US military operations.

912 *Joint Vision 2020* builds on the foundation and maintains the
913 momentum established with *Joint Vision 2010*. It confirms the vector of
914 the on-going transformation of operational concepts, and emphasizes the
915 importance of further experimentation, exercises, analysis, and
916 conceptual thought, especially in the arenas of information operations,
917 joint command and control, and multinational and interagency
918 operations. It is firmly grounded in the view that the US military must
919 be a joint force.

920 This vision recognizes the importance of technology and technical
921 innovation to the US military and its operations. At the same time, it
922 emphasizes that technological innovation must be accompanied by
923 intellectual innovation leading to changes in organization and doctrine.
924 Only then can we reach the full potential of the joint force – decisive
925 capabilities across the full range of military operations. Such a vision
926 depends upon the skill, experience, and training of the people comprising
927 the Total Force and their leaders. The major innovations necessary to
928 operate in the environment depicted herein can only be achieved through

929 the recruitment, development, and retention of men and women with the
930 courage, determination, and strength to ensure we are persuasive in
931 peace, decisive in war, and preeminent in any form of conflict.