

New  
Challenges  
 New Tools  
for Defense  
Decisionmaking

Stuart E. Johnson   Martin C. Libicki   Gregory F. Treverton

Bruce W. Bennett   Nurith Bernstein   Frank Camm

David S.C. Chu   Paul K. Davis   Daniel B. Fox   James R. Hosek

David Mussington   Stuart H. Starr   Harry J. Thie

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## PREFACE

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This book contains thirteen papers that, collectively, provide a wide variety of perspectives on future defense decisionmaking. The topics range from the global security environment, to tools for assessing both military manpower and information systems, to general techniques for gauging the adequacy of military forces, to specific techniques for improving defense decisionmaking, especially under conditions of uncertainty. The papers were originally delivered as lectures in a short-course series, “Defense Analysis for the 21st Century,” that was sponsored by the RAND Graduate School and held in RAND’s Washington, DC, offices.

The rethinking of defense planning will continue apace, spurred in particular by September 11, 2001, and the war against terrorism; but many of the ideas and conclusions presented here will retain their relevance for years to come. While no attempt has been made to develop a monolithic “RAND view” on the many challenges defense planners face, readers will see in this collection themes and methodologies characteristic of RAND’s recent defense planning work. It is hoped that these will be of interest to a broad class of individuals in government, military service, universities, and industry. The intention has been to provide papers that both describe enough of the research and analytic reasoning to convey a sense of how the work was done and present findings that should be useful for some time to come.

Most of the research underlying the papers in this book was conducted in RAND’s three national security federally funded research and development centers (FFRDCs): Project AIR FORCE, the Arroyo

Center, and the National Defense Research Institute (NDRI). These three centers are sponsored, respectively, by the Air Force, the Army, and the Office of the Secretary of Defense and the Joint Staff.

RAND's National Security Research Division oversaw the preparation of this book for distribution within the defense analysis community. This activity was made possible by funding from RAND's continuing program of self-sponsored independent research, which is derived, in part, from the independent research and development provisions of RAND's contracts for the operation of its three U.S. Department of Defense FFRDCs.

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## ABBREVIATIONS

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A&T	Acquisition and Technology
ABAT	Army brilliant antitank
ACAV	air-cushioned amphibious vessel
AFQT	Armed Forces Qualification Test
APOD	airport of debarkation
ASD	Assistant Secretary of Defense
ASVAB	Armed Services Vocational Aptitude Battery
ATACM	Army's Tactical Missile System
AWACS	Airborne Warning and Control System
BAT	brilliant antitank
BCP	best commercial practice
bps	bits per second
BRAC	base realignment and closure
BW	biological weapons
CAIV	cost as an independent variable
CAPE	C4ISR Analytic Performance Evaluation
CBW	chemical and biological weapons
CCD	charge-coupled device
C-Day	day on which U.S. forces begin mobilizing
CD-ROM	compact disk—read-only memory
CEC	cooperative engagement capability
CFATF	Caribbean Financial Action Task Force

CFE	Conventional Forces in Europe
C4	command, control, communications, and computers
C4ISR	command, control, communications, computers, intelligence, surveillance, and reconnaissance
CICA	Competition in Contracting Act
CINC	commander in chief
CMOC	civil-military operations center
COBP	code of best practice
CONOP	concept of operations
CONUS	continental United States
CPO	chief purchasing officer
C3	command, control, and communications
C3I	command, control, communications, and intelligence
C2	command and control
CVBG	carrier battle group
CW	chemical weapons
DAB	Defense Acquisition Board
DCAA	Defense Contract Administration Agency
D-Day	day on which war begins
DEPTEMPO	tempo of deployments
DMSO	Defense Modeling and Simulation Organization
DoD	Department of Defense
DoN	Department of the Navy
DOS	disk operating system
DOTML-PF	doctrine, organization, training, materiel, leadership and education, personnel, and facilities
DP	dimensional parameter
DRB	Defense Resources Board
DRID	Defense Reform Initiative Directive
DSD	Decision Support Department
DVD	digital versatile disk

EELV	Evolved Expendable Launch Vehicle (U.S. Air Force)
EMS	electronic meeting system
EPCRA	Emergency Planning and Community Right-to-Know Act
EU	European Union
FAIR	Federal Activities Inventory Reform
FAR	Federal Acquisition Regulations
FCS	Future Combat System
FEMA	Federal Emergency Management Agency
FinCEN	Financial Crimes Enforcement Network
FY	fiscal year
FYDP	Future Years Defense Program
GCC	Gulf Cooperation Council
GCCS	Global Command and Control System
GCSS	Global Combat Support System
GIG	global information grid
GNP	gross national product
GPS	global positioning system
HLA	High Level Architecture
HPM	high-power microwave
HTML	hypertext markup language
HUMINT	human intelligence
ICBM	intercontinental ballistic missile
IFFN	Identification Friend Foe or Neutral
IPT	integrated process team
IRA	Irish Republican Army
ISO	International Standards Organization
ISR	intelligence, surveillance, and reconnaissance
IW	information warfare
JCS	joint chiefs of staff
JDAM	Joint Direct Attack Munition
JFCOM	Joint Forces Command

JICM	Joint Integrated Contingency Model
JPEG	Joint Photographic Experts Group
JSF	Joint Strike Fighter
JSIMS	Joint Simulation System
JOW	Joint Standoff Weapon
JSTARS	Joint Surveillance Target Attack Radar System
JVB	Joint Virtual Battlespace
JWARS	Joint Warfare System
km	kilometer
Kt	Kiloton
LAN	local area network
M&S	modeling and simulation
MCES	Modular Command and Control Evaluation Structure
MEMS	micro-electromechanical system
MIT	Massachusetts Institute of Technology
MLRS	multiple-rocket launcher system
MOA	mission oriented approach
MOE	measure of effectiveness
MOFE	measure of force effectiveness
MOM	measure of merit
MOOTW	military operations other than war
MOP	measure of C2 system performance
MORS	Military Operations Research Society
MRM	multiresolution modeling
MRMPM	multiresolution, multiperspective modeling
MTW	major theater war
NATO	North Atlantic Treaty Organization
NBAT	Naval brilliant antitank
NCO	noncommissioned officer
NGO	nongovernmental organization
NIPRnet	joint Internet for unclassified work

NPS	Naval Postgraduate School
NRL	Naval Research Laboratory
OFW	Objective Force Warrior
OMB	Office of Management and Budget
ONR	Office of Naval Research
OOTW	operations other than war
OPM	Office of Personnel Management
OSD	Office of the Secretary of Defense
PEM	personal-computer model
PGM	precision guided munition
PO	petty officer
POM	program objectives memorandum
PPBS	Planning, Programming, and Budgeting System
PSYOP	psychological operation
QDR	Quadrennial Defense Review
RAM	random access memory
R&D	research and development
RMA	revolution in military affairs
ROTC	Reserve Officers Training Corps
RSTA	reconnaissance, surveillance, targeting, and acquisition
SADARM	sense and destroy armor munition
SALT	Strategic Arms Limitations Treaty
SAM	surface-to-air-missile
SARA	Superfund Amendments and Reauthorization Act
SAS	Studies, Analysis, and Simulations
SBA	Small Business Administration
SBCT	Stryker Brigade Combat Team
SCAV	Sea Cavalry
SEAD	suppression of enemy air defenses
SFW	sensor fused weapon
SINCGARS	Single Channel Ground and Airborne Radio System

SIPRnet	joint Internet for secret material
SIW	strategic information warfare
SLBM	submarine-launched ballistic missile
SOF	special operations force
SPOD	seaport of debarkation
SROC	Senior Readiness Oversight Council
SSC	smaller-scale contingency
SWA	Southwest Asia
TACCFS	Theater Air Command and Control Simulation Facility
TBMD	theater ballistic missile defense
TCO	transcontinental criminal organization
TCP/IP	transmission control protocol/Internet protocol
TDA	table of distribution and allowance
TOC	tactical operations center
TOC	total ownership cost
TOE	table of equipment
TQM	total quality management
TRI	toxic releases inventory
UAV	unmanned aerial vehicle
UCAV	unmanned combat air vehicle
VV&C	verify, validate, and certify
WMD	weapons of mass destruction
XML	extensible markup language