

Campaigning for Change

Organizational Processes, Governmental Politics, and the Revolution in Military Affairs

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THE 1990s HAVE USHERED in an era of rapid change, both in America's employment of its military forces and in its sense of its defense needs for the next century. A

revolution in military affairs (RMA) looms: some observers claim that Desert Storm's strategic air campaign heralded advances in technology and doctrine that will fundamentally reshape future warfare. Today, the RMA is an explicitly stated goal, enjoying the full support of Secretary of Defense William Cohen. However, its successful implementation is not foreordained. Similarly, there was no guarantee that a single air commander would direct the Desert Storm air campaign, despite the concept's endorsement by senior leaders. The reasons for this gap between stated policy and certain implementation are twofold. First, just as the air campaign's organizational enabler, the unified air commander, was not ingrained in military doctrine and practice prior to Desert Storm, neither is the RMA guaranteed to take hold throughout today's defense organizations. Second, unless the rational basis for the strategy is translated into an overarching vision, the RMA faces obstacles in the form of powerful, change-resistant bureaucratic forces.¹

This state of affairs should concern us, because even if pursuing the RMA reflects a rational choice (as US defense leaders claim),

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past experience casts doubt upon their ability to implement such sweeping changes. This article employs the example of the Desert Storm air campaign to illustrate those aspects of organizational processes and governmental politics that tend to inhibit the adoption of innovative technology and doctrine. Its methodology employs insights gained from the three models developed in Graham T. Allison's *Essence of Decision*, his seminal work on government decision making—the rational actor, the organizational process, and governmental politics models. This article first demonstrates how the policy choices in question, while not entirely predictable, nonetheless resulted from explicitly rational means. Its purpose is not to argue that the policy choice is the correct one (in the sense of being optimal); rather, it aims to show that a rational process led to the selected course of action. Next, for the case of the air campaign, it examines how organizational processes and governmental politics combined to alter this rationally chosen course of action. Finally, these findings will be combined to suggest an actionable set of recommendations aimed at enhancing RMA implementation by explicitly incorporating organizational and political factors from the start.

Admittedly, the two cases are dissimilar in important ways. The air campaign originally known as Instant Thunder was a strategy for the attainment of national objectives through the innovative use of existing forces and doctrine, while the RMA entails protracted innovation and implementation processes.² Further, selection of the Instant Thunder strategy was largely a discrete decision made by Gen H. Norman Schwarzkopf and endorsed by his superiors, whereas the RMA involves multiple decision makers charged with selection, procurement, and integration of advanced weaponry throughout (and even beyond) the US military. Yet, both cases share a common thread in that both address the application of technology to warfare in new ways. Therefore, effects present in pre-Desert Storm planning may find parallels during RMA implementation. Furthermore, if organizational processes and governmental

politics had a significant impact upon Instant Thunder, we should expect the RMA to magnify these effects due to the vastly greater number of players and time horizon.

Analytical Framework: The Rational Actor, Organizational Process, and Governmental Politics Models

Many of the post-Gulf War analyses of air power assumed that the air campaign was the result of a rational choice, which is a clearly compelling supposition. General Schwarzkopf asked for and received a strategic air campaign plan, an apparently rational course of action in that it played a coalition strength against an Iraqi weakness. However, this assumption fails to explain why the military was able to fight a war that ran counter to its basic assumptions about the proper role of air forces. US military leaders believed strongly that they should train as they were going to fight, and the US military in 1990 was thoroughly prepared to employ air forces in support of ground forces and in simultaneous, not sequential, fashion. Furthermore, our explanation must account for the influence of governmental politics. Despite the fact that the joint force air component commander (JFACC) concept was grounded in joint doctrine, it was extremely controversial.³ Services whose leaders disagreed with this concept had not taken steps to enable integration of their air forces under a unified air commander. We thus must examine not only the rational basis of this innovative strategy, but also the organizational and political dynamics that altered it and could have rendered it ineffective.

Graham Allison's study of the Cuban missile crisis, *Essence of Decision*, provides a useful framework for this analysis.⁴ In that work, Allison examined the events of October 1962 using three different conceptual models. The first, the rational actor model, treated governmental action as the result of rational choice.

The second, the organizational process model, built on concepts from organizational theory and economics to assert that such actions can be described as the output of organizational processes. Finally, the third, the governmental politics model, held that governments act in ways that reflect bargaining by players with different stakes and objectives. Allison makes the point that all three levels of analysis are useful. However, he claims that the second and third models provide the analyst with greater explanatory and predictive power.

These models lead to several insights into the decision making that led to an innovative air strategy against Iraq. Model 1 clearly applies, insofar as the plan which Schwarzkopf took forward was based on Col John A. Warden's strategic approach to planning an air campaign.⁵ In rational fashion, air planners began with national objectives as their starting point, identified complementary military objectives, and then chose targets to support those objectives according to Warden's theories of "inside-out" warfare. Next, applying Models 2 and 3 will permit us to understand how organizational processes and governmental politics influenced the air campaign plan. Organizational factors explain why the Air Staff's concept of operations was doctrinally distinct from that of US Central Command (CENTCOM) and the other services, and bureaucratic forces are responsible for the debates over the air campaign's linchpin, the JFACC.

Moreover, Allison's models have increasing levels of predictive and even normative power. The action taken by an organization at time $t + 1$ is partially determined by its existing processes at time t . Thus, governmental actors who took a certain position towards airpower during Desert Storm may adopt a like stance during current RMA-associated efforts to operationalize technology in innovative ways. Further, knowing which elements of a bureaucracy are ascendant gives important clues as to the likelihood that defense officials will succeed in transforming the military, or whether the future will be much like

the present. This article advocates neither Instant Thunder nor the RMA; it merely aims to predict the success of the latter by analyzing the development of the former. The conclusions do have normative value, however, in that they point to some key ways in which defense policy can enable the US military to better leverage doctrine, organization, and technology. As Allison points out, systematic analysis holds the promise of better implementation of a preferred alternative by explicitly considering organizational and political factors at the outset.⁶

The Path to the Air Campaign

Graham Allison's framework of three models—the rational actor, the organizational processes, and governmental politics—provides a helpful insight into the conception and implementation of the innovative air campaign strategy in the Gulf War.

Model 1: Rational Actor

Using Model 1, the rational actor model, US goals and objectives are the most important factors influencing strategy selection. Although the United States acted as a member of a coalition, the air campaign was conceived, planned, and largely executed under US auspices. Therefore, for the sake of simplification, the United States will serve as the "rational actor" in this analysis.⁷ As President George Bush made clear, US goals included forcing Iraq's withdrawal from Kuwait, restoring Kuwait's legitimate government, securing the stability of the Persian Gulf region, and protecting US lives.⁸ The United States faced two alternatives: using force or relying on economic sanctions. A sanctions-only policy would have called for the coalition to build up its forces in-theater only enough to defend Saudi Arabia from invasion. Backed by this defensive posture, diplomacy would have been the chief means of reaching national objectives. Although this approach had clear advantages, the Bush administration ultimately decided that sanctions were unlikely to com-

pel Iraqi president Saddam Hussein to accede to US wishes.⁹

Another rational strategy was to rely on some combination of ground and air forces to threaten and, ultimately, to force Iraq to comply with US and coalition objectives. Possible alternatives included (a) an air attack on strategic targets in Iraq, (b) a combined air/ground offensive against Iraqi forces in Kuwait, or (c) a phased air/ground offensive in both Iraq and Kuwait. Ultimately, the United States chose the third option because it was most likely to bring about US objectives at an acceptable cost. Although option (a) was what Warden and other airpower advocates had in mind when they designed Instant Thunder, they took a considerable risk: the expectation that airpower alone would induce an adversary to give up territory lacked historical grounding. The second alternative, option (b), was consistent with then-current AirLand Battle doctrine. Of the three options, it was widely expected to produce the most casualties because it did nothing to diminish Iraqi opposition before a counterattack by ground forces. Iraqi forces were dug into their positions in Kuwait, expected the coalition to attack Kuwait, and were prepared to exact high numbers of coalition casualties. In addition, it would have been problematic to perform the "left hook" maneuver without first paralyzing Iraqi command and control at its source in Iraq proper.

On the other hand, combining air and land power in turn (option [c]) had historically been an effective means of applying military might while minimizing casualties. This approach had the additional advantage of giving commanders sequential options: for example, they could proceed with the air campaign (as per option [a]), and then decide later whether to go forward with the ground attack. If the air campaign did not achieve the desired degradation in Iraqi combat effectiveness and if casualty forecasts remained unacceptably high, the air campaign phase could be prolonged or the ground phase could be canceled. Note that option (c) is not Instant Thunder as Colonel Warden originally conceived it; the impact of the initial Instant

Thunder plan on this option is its massive parallel attacks on targets in Iraq proper.

While there is no record of decision makers explicitly weighing or ranking these three options, Allison claims such a record is not required: "Predictions about what a nation will do or would have done are generated by calculating the rational thing to do in a certain situation, given specified objectives."¹⁰ Thus Allison's Model 1 suggests that we merely logically connect the national objectives with the means chosen. The above Model 1 analysis, focusing on the strategic choice of actors, thus leads to an unsurprising outcome: it suggests that the United States chose to conduct a strategic air campaign in the context of a phased air/ground offensive (option [c]) because it was the most effective means of reaching US goals. Although option (b)'s conformity with AirLand Battle doctrine might have favored its selection, the expectation of high coalition casualties was enough for a rational actor to rule it out.¹¹ Overall, then, the choice of option (c) seems rather straightforward and provides few insights not already apparent to students of the Gulf War. But this is what we would expect, given Allison's observation that much strategic thinking falls within the confines of Model 1. As we shall see in the next sections, there were important organizational forces at play, both before and after the policy choice was made, that could have brought about a different course of action. Thus, the policy makers who chose option (c) had taken a necessary—but not sufficient—step towards the events of January 1991.

Model 2: Organizational Process

Taking a Model 2 organizational process approach, the decision—the strategic air campaign—becomes an output of organizational processes. We thus focus on which organizations were responsible for generating the air campaign plan and examine how their perceptions, priorities, and standard operating procedures (SOP) (as well as sets of SOPs which Allison calls programs) combined to shape the outcome. The chief organizations

to be concerned with here are CENTCOM and the US Air Force. Organizational processes help explain how these organizations produced two very different plans in the early days of the crisis.

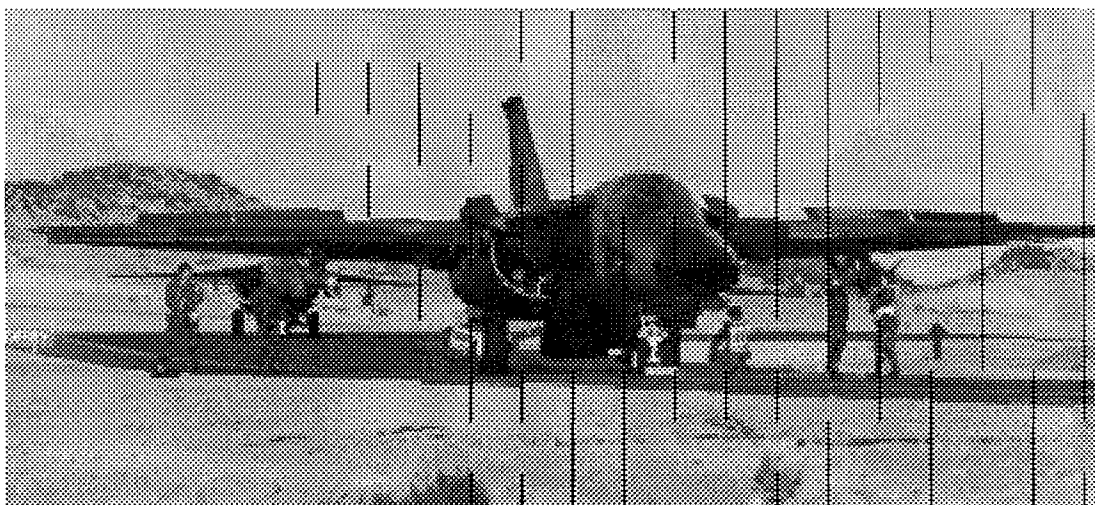
The starting point for CENTCOM's August 1990 crisis response had roots in cold war plans and thus incorporated many of the underlying assumptions of that era. Military planners had anticipated that, in a regional contingency, the United States would be highly dependent on airpower but not in the sense of a strategic air campaign.¹² While CENTCOM's contingency plan for combating aggression in the Persian Gulf underwent extensive changes after the cold war, airpower was still cast in a decidedly supporting role on the eve of Desert Storm.

In addition to the planning process, the organization had an additional program at its disposal to help reduce uncertainty: simulated warfare in the form of exercises. However, diplomatic sensitivities and the lack of troops stationed in the region limited CENTCOM's capacity to conduct full-scale exercises. Command post exercises such as Internal Look 90 were the next best choice. While these exercises were valuable (for example, they identified the need for a strategic air op-

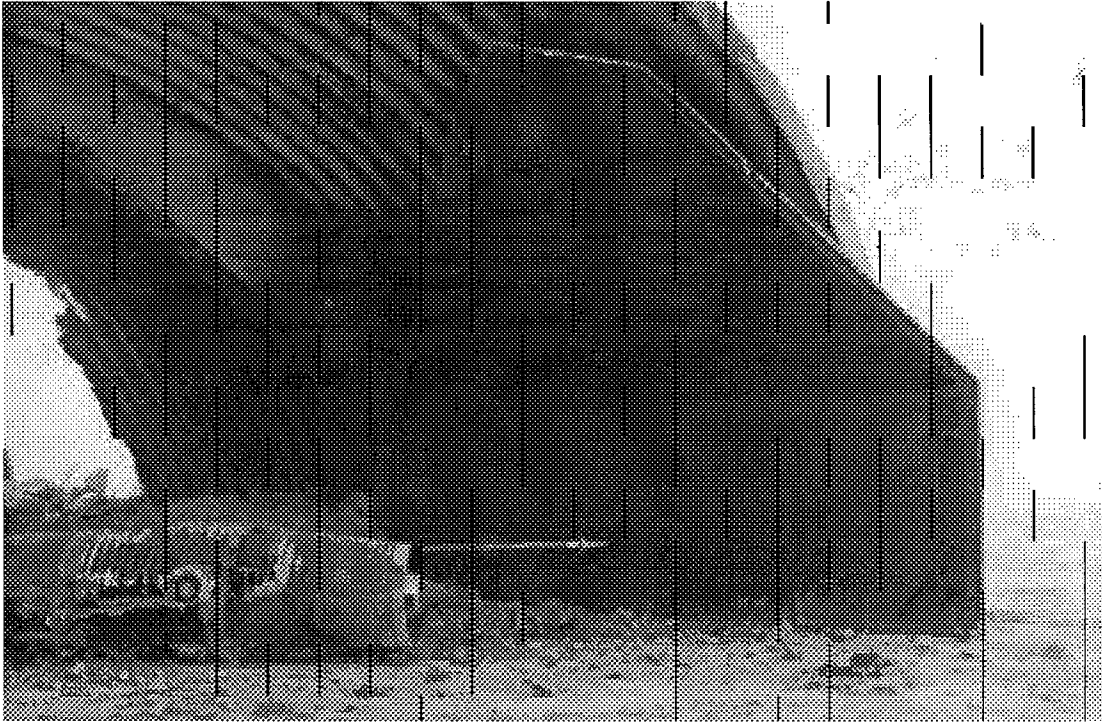
tion), their defensive focus further habituated CENTCOM's and its air force component's (CENTAF) organizational processes.

CENTCOM's organizational processes thus actually limited its options by carrying forward assumptions without allowing for fresh thinking, especially about contentious doctrinal issues such as an independent air campaign. This is not to suggest that CENTCOM or CENTAF planners were intellectually lax, because it would be unreasonable not to build on previous experience. Starting each time with a clean slate would both prolong the planning process and discount the considered judgments of past strategists. However, it does underline how systemic factors—inherent in an organization's programs—can influence outcomes in ways difficult for policy makers to foresee.¹³

The second organization whose actions shaped the air campaign was the US Air Force, specifically the Air Staff. In contrast to CENTCOM's precise application of the military's prescribed planning process as outlined above, the Air Staff's input was quite ad hoc. In part, this reflects the reality of crisis action planning; still, it represents a significant departure from the usual procedures. Led by Colonel Warden, a group of officers in a plan-



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ning cell known as Checkmate came up with a plan for a strategic air campaign. This process was unhampered by the intellectual limitations imposed by years of devising defensive theater plans. The Checkmate plan was distinct from previous CENTAF thinking in that it attempted to render enemy leadership ineffective by disabling Iraq's information and communication capabilities. In addition, it focused on using force to create desired effects rather than to attrit. Eventually, Checkmate's planning efforts were incorporated into CENTAF's in the form of the "Black Hole" planning group in Riyadh.

In addition to planning and exercises, another key organizational process was the development of service and joint doctrine. The Air Force's doctrine had been shaped by the wars in Korea and Vietnam, both of which saw geographic and organizational division of airpower by service and even within services. Consequently, the Air Force's doctrine manual, AFM 1-1, Basic Aerospace Doctrine of the United States Air Force, was vague on a unified, independent role for airpower. As Col Edward Mann observed, "The main sections of the manual seem carefully to skirt this issue, stressing instead the interdependence of air, land, and sea forces."¹⁴ Joint doctrine likewise failed to mandate unified control of the air war.

Thus, the US military entered the Gulf crisis lacking an ingrained routine that ensured centralized control of strategic conventional air operations. In addition, the doctrine of the US Army, known as AirLand Battle, envisioned airpower as an integrated but subordinate element to the ground scheme of maneuver.¹⁵ Army doctrine did not view airpower as having an independent, strategic role. Further, naval forces lacked interoperability with the US Air Force; for example, the air tasking order (ATO) could not be transmitted automatically but had to be flown to the carriers daily. Marine commanders were likewise unfamiliar with the ATO process and preferred not to rely on it.¹⁶ However, Schwarzkopf's choice of organization and the six-month buildup allowed enough time for

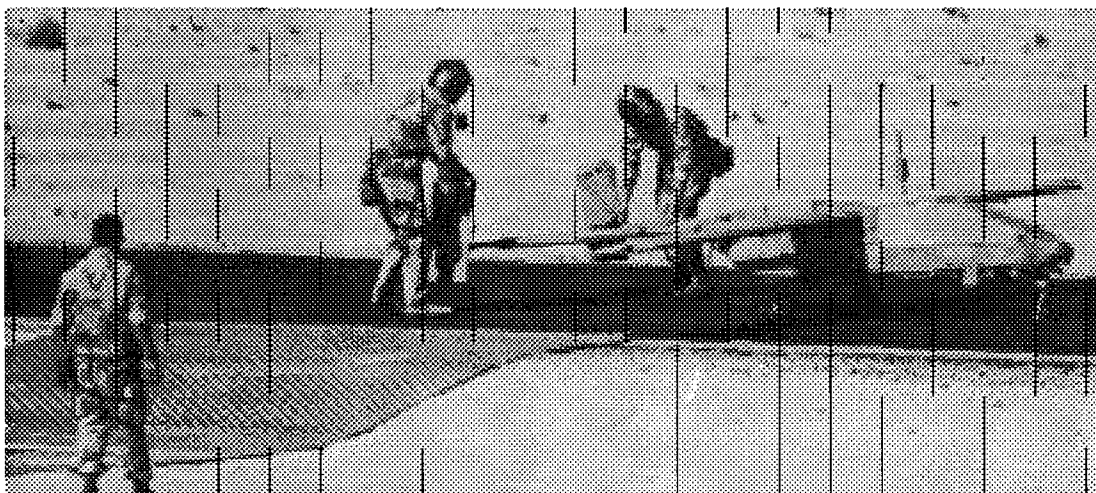
planners and operators to overcome many of these challenges.

Model 2 produces several insights into the organizational processes behind Instant Thunder's development. First, CENTCOM's habitually defensive thinking from past planning processes initially restricted its range of options. Second, the Air Staff organization proved flexible enough to allow an ad hoc planning group to form, to develop a revolutionary plan consistent with political imperatives, and to communicate that plan to field commanders. An organizational problem—the lack of organic ability to plan a strategic air campaign—found an organizational solution—the melding of Checkmate and CENTAF's planning efforts. Finally, shortcomings in organizational processes and doctrines were resolved during the buildup phase.

In addition, the Air Force's partial acceptance of John Warden's ideas about parallel warfare represents a rare instance of peacetime organizational innovation. As Stephen Peter Rosen has pointed out, peacetime innovation generally requires more than a maverick who challenges the prevailing doctrine.¹⁷ According to Rosen, military innovation succeeds when senior officers enable younger officers favoring the innovation to gain a voice.¹⁸ Seen in this light, Gen Michael Dugan, Air Force chief of staff, took a critical step towards innovation when he put Warden in charge of Checkmate. An alternate organizational source of innovation was the CENTCOM planning staff. If the Air Staff's effort had not met his needs, Schwarzkopf could have turned to his planners and directed them to plan a strategic air campaign. However, as discussed earlier, past planning procedures may have inhibited CENTCOM planners from fully exploiting airpower's strengths.

Model 3: Governmental Politics

Allison's governmental (or bureaucratic) politics model posits that the various players within governments take positions that will tend to enhance their power, both laterally and vertically. Because "where you stand de-



An unmanned aerial vehicle in Desert Storm. The major limits on exploiting long-available technologies are not inadequate research, development, and procurement but rigid and parochial organizational systems within and among the military services.

depends upon where you sit," Model 3 analysis causes us to identify the channels in which an issue arises, is decided upon, and finally implemented. These channels can have a major impact on governmental decision making by determining which players will be involved in a decision and how much power each will be willing to stake on the outcome. Decisions are the result of "pulling and hauling" between the various entities and cannot be understood without an appreciation of the forces that animate the participants. Furthermore, Allison points out, it is important to recognize that participants' options fall within a range of acceptable actions, constrained by custom, doctrine, and past policy pronouncements.¹⁹

Allison's emphasis on the importance of channels in determining outcomes is illustrated dramatically in the genesis of the air campaign. As discussed earlier, General Schwarzkopf chose to request a strategic air campaign plan from the Air Staff. Reintegrating Instant Thunder into CENTAF channels was predictably problematic; fortunately, General Schwarzkopf gave Lt Gen Charles A. Horner, commander of CENTAF, wide lati-

tude to modify the Instant Thunder plan, and there was time to overcome the "not invented here" objection. Moreover, constant communications between Checkmate and the Black Hole planners accounted for the strong continuity between Instant Thunder and the final plan for Desert Storm's air campaign.²⁰ Thus, Model 3 analysis lends support to the conclusion that channels of communication can strongly influence outcomes.

Schwarzkopf's choice of the Air Staff as the source for the campaign plan also had the effect of putting the Air Force in the bureaucratic driver's seat with Warden at the controls. Although planners from all services contributed to the Instant Thunder plan, it was Warden who took the plan to the other services. Thus, his ideas about air power were embedded in the plan from the start—including, critically, the value of an air campaign plan.²¹

Model 3 analysis also considers the impact deadlines can have in forcing decisions. During the Gulf crisis, deadlines played an important role. On three separate occasions, Gen Colin Powell discussed with the president the deadline for making a decision to commit to

an offensive strategy rather than to rely on sanctions. Therefore, in late October 1990, President George Bush decided to augment the initial, defensive force with a much stronger, offensive force. Without Powell's insistence, Bush may not have recognized the exact point in time when he had to choose between indefinitely prolonging sanctions and developing an offensive capability.²²

Why an Air Campaign?

The three models each lead to important insights into the strategic decision making culminating in Desert Storm's air campaign. We find that the air strategy is consistent with a rational actor theory and that it is clearly the product of organizational processes and bureaucratic politics. The continuity among these analyses cannot be wholly unexpected. If in Model 1 we had decided that a rational actor would have chosen a completely different strategy, it would lead us to seek, in Models 2 and 3, to uncover those organizational and political processes that may have led decision makers astray. As it happens, however, Models 2 and 3 have allowed us to identify several characteristics that enabled the military to produce new operational capabilities by combining existing technology with enabling doctrine.

First, it is useful to have a well-considered, overarching vision that is shared throughout the chain of command. Schwarzkopf's support for Instant Thunder's core concepts enabled disparate organizations to collaborate on the end product. Second, the vision should be made actionable by adopting organizational programs to guide all agencies responsible for planning and implementation. In the case of Desert Storm's air campaign, this meant the centralization of air operations under the JFACC using the air tasking order process. Last, decision makers must have a means of perceiving the cascading impacts that their decisions often have. The presence of these same attributes—an actionable, clear vision combined with a transparent mechanism for implementing deci-

sions—might notably increase the prospects for RMA implementation.

The Path to the RMA

In undertaking the RMA, the US military is choosing the most difficult of possible paths to the future. Singleness of vision and linear paths to strategy implementation are not the strong suits of the US military. Rather, Allison-style "pulling and hauling" amongst roughly equal actors—the services among themselves and the legislative and executive branches above them—better characterizes the milieu in which this revolution will play out. This brings us to our objective, which is to assay the prospects for the RMA by extrapolating the insights gained from the above air campaign analysis. Here, Allison's models can be expanded to suit our purposes. Using Model 1, we will expose the rational basis for the decision to pursue the RMA. An essential question here is whether the decision process has furnished the Department of Defense (DOD) with a clear vision that can unite disparate organizations. Model 2 then leads us to consider the relevant organizations involved in implementing the RMA. Is it likely that these agencies, by employing their existing programs, can combine their efforts to produce a true transformation? Finally, using Model 3, we can predict the impact of governmental politics on the RMA. Given the decision-making and implementation channels, will leaders have a clear picture of how each alternative either contributes to or detracts from the overall objective? Further, will the parochial interests and past stances of the players subvert the intended transformation?

Model 1: Rational Actor

Both the Quadrennial Defense Review (QDR) and the National Defense Panel (NDP) reports relied upon rationally based analyses which led each to recommend that the US military should actively seek to transform itself. The analyses differ primarily in the speed with which they advocate adopting the RMA. The



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QDR is the more conservative of the two because it focuses more on current threats; the NDP emphasizes future dangers. In classic rational-analytic fashion, the QDR first states national goals and objectives; it then identifies alternatives, evaluates likely consequences, and recommends actions that hold the greatest promise of meeting the objectives. A key assumption of the QDR is that political and military engagement overseas will continue and that American military superiority will be maintained. Further, the QDR strategy calls for the United States to be able to undertake two overlapping major theater wars while defense resources remain constant. Taken together, these factors produce

the QDR's central trade-off between speed of adoption of the RMA and preservation of current force structure.

Since the RMA presumably would be realized in part through buying new systems, the QDR's procurement budget is a partial reflection of the speed with which the United States feels it can exploit the RMA. One alternative was to maintain the current trend, in which procurement was expected to rise from \$42.6 billion in fiscal year (FY) 1998 to \$50 billion by FY 2001. Using force-structure cuts to achieve more procurement spending, the QDR entertains alternative increases in procurement to \$60 to \$65 billion.

Ultimately, the QDR chose to hedge against uncertainty by taking the middle ground, maintaining that a \$60 billion procurement budget would permit "increasing newsystems and technologies at a reasonably aggressive rate, with modest room for new program starts. The goal for this path is to begin transforming the force to meet future challenges, while also shaping and responding to meet near-term challenges."²³ The \$60 billion QDR's procurement budget, however, only brings it in line with what was originally planned in the president's FY 1998 budget. As documented in the QDR, procurement spending declined 63 percent between 1985 and 1997. The goal of \$60 billion still represents a 50 percent drop since 1985.

Model 1 analysis brings us to the conclusion that the United States has chosen to pursue the RMA because it wants to be able to dominate in future battles. It weighed the importance of continuing current commitments against the risks of being slow to transform. In sum, the United States has elected to pursue the RMA as quickly as fiscal constraints permit, while simultaneously maintaining the ability to respond to interim security challenges.

The second Model 1-style analysis of the impact of the RMA on US defense strategy came from the NDP. The essential difference between the NDP and the QDR is that the NDP's analysis discounted the probability of two nearly simultaneous major theater wars and focused instead on future threats. Since the panel differs with the QDR in its assessment of the strategic environment, Model 1 correctly predicts that it arrives at a different set of recommendations. The panel decided that "selecting a strategy appropriate for twenty years hence was not possible or desirable." Instead, the NDP argued that the United States should embark upon a transformation strategy. This is a fundamentally different approach from the QDR's, but it still conforms to Model 1 in that it assumes the United States can select and pursue a strategy through rational choice.

The panel embraced the RMA, stating, "We are on the cusp of a military revolution stimu-

lated by rapid advances in information and information-related technologies." Like the QDR, the NDP perceived a risk inherent in sacrificing force structure to pursue the RMA: "If we transform ourselves too quickly, we may inadvertently dismantle elements of our military that have kept us safe all these years and still have to play a role."²⁴ However, the panel also discerned a risk associated with tarrying: "If we do not lead the technological revolution we will be vulnerable to it."²⁵ Along with recommending several reorganizations and shifts in roles and missions among the active and reserve components, the NDP identified a need for \$5 to \$10 billion annually to pay for "initiatives in intelligence, space, urban warfare, joint experimentation and information operations."²⁶

Despite their differences, both the QDR and the NDP concluded after rational analysis that the nation should pursue the revolution in military affairs. More importantly, there are indications that they add up to a shared strategic vision. For example, Gen Charles Krulak, Marine Corps commandant, has advocated "literally rebuilding our strategy-making process, rebuilding the way we look at national security, in order to capitalize fully on all of our national strengths." Krulak says his vision extends "beyond interagency, beyond jointness."²⁷

Model 2: Organizational Process

As our earlier analysis of Desert Storm's air campaign suggests, however, the rational strategies outlined in the QDR and the NDP do not foreordain the progress of the RMA. One observer, contending that focusing on procurement funding misses the key issue, wrote that "the major limits on exploiting long-available technologies are not inadequate research and development and procurement, but rigid and parochial organizational systems within and among the military services."²⁸ Enunciating a policy in the QDR is one thing; translating the goals into actionable capabilities is another altogether.

The DOD's policy-making repertoire relies upon many planning and programming or-

ganizations, well practiced in the art of assessing the impact of different funding levels on acquisition programs within functional areas, as well as in the employment of an arsenal of analytic tools. Like CENTCOM on the eve of the Gulf crisis, the DOD's ability to generate alternatives is heavily reliant upon existing organizational structures and programs. For example, the process of assessing the worth of new technology often employs models and simulations, such as the Deep Attack Weapons Mix Study, which was used to evaluate the effectiveness of various weapons mixes in nominal scenarios. These models, because they use data from past conflicts, are better at modeling operational capabilities of attrition-oriented doctrines and force structures than those of information-based future war.

The Department of Defense's key program for ensuring that the DOD budget reflects policy priorities is the planning, programming, and budgeting system (PPBS). Instituted by Secretary of Defense Robert S. McNamara in the 1960s, the PPBS comprises inputs from the secretary of defense, the Joint Staff, the combatant commanders, and the services. However, the PPBS is inherently limited when it comes to implementing innovations such as the RMA. For example, although it is possible to identify total procurement spending, gauging the amount of that spending which is being devoted to the RMA is more difficult. Because of previous commitments to purchase existing systems, those systems stand a far better chance of being funded than do RMA technologies. Thus, the organizational process is much more likely to come up with the targeted spending level of \$60 billion for procurement than it is to ensure that those funds are devoted to exploiting the most promising new technologies.

The NDP suggested giving RMA programs better visibility by creating a Joint Forces Command that would be the locus of joint innovation and experimentation. Further, it advocated giving the joint forces commander budget authority to ensure that the experimentation program was fully supported.²⁹ This organizational mechanism proved suc-

cessful when deficiencies were perceived in special operations forces in the 1980s, so the NDP recommendation seems to reflect an at-

Another expectation we can derive from the pre-Desert Storm period is that the inability to realistically rehearse new doctrine can leave contentious issues unaddressed and logical flaws undiscovered.

tempt at organizational learning.

Rather than create a new Joint Forces Command, however, Secretary Cohen recently decided to designate the US Atlantic Command (USACOM) as the executive agent for conducting joint war-fighting experimentation. To ensure visibility at the DOD level, Secretary Cohen charged the Defense Resources Board with conducting periodic reviews of USACOM's activities as part of its RMA oversight role. Significantly, USACOM will not have budget authority; instead, the chairman of the Joint Chiefs of Staff, in coordination with the services and the Office of the Secretary of Defense, will establish levels of funding support.³⁰

The individual services will thus continue to play an important role in RMA implementation. The evidence suggests that they are already responding to the strategic vision through organizational routines. The advanced concept technology demonstration (ACTD) program is one example. The DOD developed this program to inject innovation rapidly into the field. According to Secretary Cohen, "The ACTD is our approach to capturing and harnessing technology and innovation rapidly for military use at reduced cost."³¹ Some ACTD programs have succeeded; for example, Portal Shield, an automated warning system that can detect chemical and biological attacks, was deployed in 1998, only two years after development began at the Naval Surface Warfare Center.³² Others have met with more resistance. The

Navy canceled the arsenal ship, a much more costly ACTD, after a funding cutback by the

The platforms also developed constituencies in Congress, whose members saw the continued production of the platforms as ensuring jobs in their states or districts.

Congress.³³

Another expectation we can derive from the pre-Desert Storm period is that the inability to realistically rehearse new doctrine can leave contentious issues unaddressed and logical flaws undiscovered. The services are addressing this by supporting efforts such as the battlelab concept. Battlelabs are an attempt to put creative thinkers in an environment where they can experiment with and quickly incorporate new operational and logistic concepts. Focusing on concepts such as unmanned aerial vehicles, battle management, and space, these battlelabs span the spectrum of technological, organizational, and functional innovation. Battlelabs, together with war-fighting experiments, joint exercises, and simulations, represent organizational routines aimed at developing what sociologists call organizational intelligence. These efforts could have the same impact that Checkmate and the Black Hole planners had on Instant Thunder if they are nurtured by senior leadership.

Sociologists Barbara Levitt and James G. March point out, however, there are several obstacles to learning from experience. First, it will be difficult for the battlelab experiments to remain relevant in the face of rapidly changing technology and threat uncertainties. Second, during the process of experimentation, the battlelabs may develop routines that themselves may become barriers to innovation. Finally, the lessons learned from experimentation may be ambiguous since the causal factors may be complex. According to Levitt and March, learning can be counter-

productive in terms of organizational intelligence if it leads to erroneous inferences. Thus, although the DOD's experimentation program is an impressive indicator of organizational commitment, it is not a guarantee that the RMA will succeed.³⁴

Furthermore, while ACTDs and battlelabs may assist the department as it attempts to elevate the priority of the RMA, budgeting processes may continue to delay it. The PPBS itself inserts a two-year delay between identifying a need for change and providing the required funding. In addition, the budgeting process creates pressures that can work against innovative technology. In recent years when the cost of operations exceeded planned levels, the shortfall resulted in cuts to research and procurement accounts. This is because operations funds come out of current appropriations, while modernization involves both current and future spending. Money cut from research and development, and to some extent procurement programs, usually results in only a small percentage of the cut becoming available for spending in the current year. As the QDR points out, the result has been "a yearly postponement of modernization goals."³⁵ Furthermore, since acquisition of legacy systems has also received a higher priority in the past, Allison's Model 2 leads us to expect that organizational tendencies will tend to perpetuate this pattern. Overcoming the inertia of continuing to modernize existing forces even in the face of a recognized need to invest in new technology is an ongoing organizational challenge.

The organizational lens reveals both barriers and the enablers for the RMA. Organizations are responsible for its lack of visibility in the budgeting process, absence of ownership and advocacy by any one segment of the defense establishment, and an acquisition process that can increase the cost of innovation by focusing on procurement rather than prototyping. On the other hand, organizational changes are taking place; senior officials have become involved in promoting technology development, and routines now exist to bring advanced technology and the institutions that nurture them into the organization. Still,

it remains to be seen whether these organizational changes can overcome barriers to real innovation. The success or failure of RMA efforts may turn, not solely on organizational factors, but also on the characteristics of governmental politics.

Model 3: Governmental Politics

Using the governmental politics model reveals that the services largely control key action channels for injecting discontinuous change into military forces. Desert Storm's dramatic technologies were available to all the services, but each assessed those technologies differently and thus exploited them at different rates. Often, existing action channels tended to incorporate the technologies into certain platforms, whether or not it was the best way to exploit the technology. Each platform—aircraft carrier, fighter aircraft, and main battle tank—had a community that had grown up around it and sought to enhance that platform's capability. The services became committed to those platforms, which were seen as central to each service's ethos. The platforms also developed constituencies in Congress, whose members saw the continued production of the platforms as ensuring jobs in their states or districts. Therefore, the surest channel for fielding RMA technologies is to build them into and around carriers, manned aircraft, and heavy armor. The difficulty is that this approach is unlikely either to produce the most defense capability or to engender rapid adoption of RMA capabilities.

One of the means of overcoming this bureaucratic inertia is to develop a consensus among the end users, in this case the combatant commanders, that an innovation will help them perform their mission. This would create a powerful governmental advocate to push for new capabilities, just as Schwarzkopf's insistence on a strategic air campaign was critical to its success. US Space Command, for example, sends teams to work with the unified commanders to ascertain their needs. Eventually, as new capabilities are fielded, it helps ensure that operational plans incorporate them.³⁶ This creates re-

quirements "pull" which can accelerate procurement.

Another counter to bureaucratic inertia is simply to bypass it, as Schwarzkopf perhaps did when he approached the Air Staff directly. This was also the case with the development of the F-117A, according to Paul G. Kaminski, the former undersecretary of defense for acquisition and technology. He credits the successful acquisition of the F-117A to the program's highly classified status during development. Thus, it "was not in visible competition with other Air Force programs. Had it been in competition with other programs . . . we might not have done the program at all."³⁷ Security was also helpful to the F-117A effort in that it shielded the plane from criticism during development and it "facilitated open and non-adversarial relationships with the Congress."³⁸ However, secrecy is a high price to pay; it can mask inefficient practices, it is expensive to maintain, and it can make field commanders reluctant to exploit new capabilities.³⁹

Moreover, the United States has now moved from a threat-driven resource allocation environment to a cost-driven one. As obvious threats vanish, it will become more difficult to develop requirements "pull." Finally, as Kaminski observes, current cost constraints can induce decision makers to shy away from taking risks, thus inhibiting technological advances. ACTDs may counteract this tendency. By actively seeking out new concepts "before their time," they may alert threatened constituencies who could then work to thwart them.

Even if new technologies are funded and injected into platforms where they can have maximum effect, they must be incorporated into established doctrine before being built into force structure. The battlelab concept provides only a partial answer to this issue. Between successful demonstration of new concepts in a battlelab and their codification in new doctrine lies another treacherous path, fraught with bureaucratic obstacles. Joint doctrine threatening to particular platforms or services can become contentious, as the JFACC experience makes plain. The bat-

tlelabs are service creatures, as are many future-oriented war games. Until new concepts are built into the joint analytical models

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used to study alternate force structures, they will have limited impact on operational plans and acquisition priorities.

The services have two limitations that inhibit their ability to serve as action channels for implementing change. They lack both the authority to conduct the joint experimentation which will fully test their visions and the credibility to present the outcomes of field tests in terms that would not be seen as parochial. The joint innovation concept advocated by the NDP attempted to address this shortcoming. In short, this concept included joint field testing by a new Joint Force Command, integrating service battlelabs under a Joint Battlelab, and joint national training centers. This concept offered a means of institutionalizing innovation by giving the joint force commander the ability to combine the innovation programs of each of the services. Joint exercises and experiments would gain credibility because they would no longer be conducted under the auspices of commanders in chief (CINC) with their regional focus or the services with their limited scope. However, this approach would have made the joint force commander a powerful arbiter of the direction of the RMA. Thus Secretary Cohen's recent decision to designate USACOM as the focus of joint experimentation, while leaving the services fully empowered to experiment within their core competencies, is an attempt to both enhance and preserve multiple routes to transformation.

Still, joint implementation of USACOM's experimental outcomes presupposes cooperation from the services in their traditional roles of organizing, training, and equipping the armed forces. Since the services will be giving up control over the scenarios in which the new concepts will be tested, the outcomes may fail to gain service support. To the extent the services reach different conclusions over the results of joint experimentation, they will disagree on the advisability of force structure and doctrine changes. Furthermore, the acquisition process introduces a powerful, service-centered action channel that can frustrate needed innovation. As Allison points out, "When a governmental or Presidential decision is reached, the larger game is not over. Decisions can be reversed or ignored. . . . For after a decision, the game expands, bringing in more players with more diverse preferences and more independent power."⁴⁰ Joint experimentation combined with service implementation thus runs the risk of uneven integration of revolutionary capabilities.⁴¹

Conclusion and Recommendations: Whither the RMA?

We have seen several indications of the probable course of the RMA by applying observations gleaned from Instant Thunder. On the rational-actor level, Desert Storm's air campaign and the future trajectory of the RMA seem like logical, even predictable, courses of action. On the organizational level, they look much less inevitable. Instead, they become the products of organizations moderating each other, as demonstrated by the cooperation between CENTAF and Checkmate on the one hand, and the proposed leveraging of service initiatives to produce joint innovation on the other. In addition, on the governmental-politics level, the cases raise our awareness of the clashes among parochial entities.

This analysis has highlighted the forces at work as the military attempts to come to terms with the RMA and points the way to-

ward better implementation. First, at the rational-actor level, the military is constrained by limited defense dollars and by the need to balance the opportunities for transformation with the risks of abandoning current commitments. While a shared vision of a transformed US military is emerging, it is not enough. An authoritative leader, whether it be the JCS chairman or some other official, must champion its implementation. Only then will it gain support among the unified CINCs and the services. Second, the services have instituted organizational processes that can lead to innovation, but again, a true RMA might not result. Traditional budgeting processes must not be allowed to subvert attempts to prototype revolutionary new capabilities. By designating the Defense Resources

Board to oversee USA COM's joint experimentation efforts, Secretary Cohen took an important step in this direction. However, the intellectual underpinnings of defense decisions must be rigorously scrutinized as well; outdated assumptions must be excised lest they undermine the validity of models and simulations. Finally, if USA COM is to become an effective force for joint experimentation, it will need strong support as it contends with existing action channels—namely, the services' traditional provinces of training and equipping combat forces. Governmental politics analysis indicates the need to prevent seemingly unconnected service decisions from impeding coordinated implementation. Seen in this light, organizational processes and governmental politics hold the key to military innovation, whether on the eve of battle or at the dawn of a revolution in warfare. □

Notes

1. In this article, the RMA refers to advances in precision weaponry, stealth, and information technology, combined with enabling doctrine, which the DOD asserts will fundamentally change future war.

2. Instant Thunder refers to the strategic plan for the Desert Storm air campaign against Iraq. Instant Thunder was developed by the Air Staff in Washington, D.C., for Gen H. Norman Schwarzkopf in August 1990 and then transferred to Gen Charles Horner and his staff in Riyadh, Saudi Arabia.

3. According to joint doctrine, the service with the preponderance of the air assets (not necessarily the Air Force) was normally appointed JFACC. See Joint Publication 3-01.2, Joint Doctrine for Theater Counterair Operations (from Overseas Land Areas), 1 April 1986, III-4, quoted in Edward C. Mann III, *Thunder and Lightning: Desert Storm and the Airpower Debates* (Maxwell AFB, Ala.: Air University Press, April 1995), 56.

4. Graham T. Allison, *Essence of Decision: Explaining the Cuban Missile Crisis* (Boston: Little, Brown, 1971). Interestingly, one of the questions Allison treats in *Essence of Decision* is why the United States chose to blockade Cuba as opposed to initiating air strikes. Although the circumstances of the Cuban missile crisis and Desert Storm are clearly quite different, and air strikes against Cuba were in the offing had the blockade failed to reach its objectives, the divergent strategies chosen during the two crises are striking.

5. See John A. Warden III, *The Air Campaign: Planning for Combat* (Washington, D.C.: National Defense University Press, 1988). At the time of the Gulf War, Warden was the Air Staff's deputy director of plans for war-fighting concepts.

6. Allison, 268.

7. This is not to say that allies were uninvolved in the choice of strategy; rather, it is to suggest that because the preponderance of the resources ("means") came from the United States, the "ends" of the United States were critically important in adducing the strategy which connected the ends to the means. In this

formulation, allied concerns can best be expressed as constraints rather than causal factors.

8. Thomas A. Kearney and Eliot A. Cohen, *Gulf War Air Power Survey: Summary Report* (Washington, D.C.: Department of the Air Force, 1993), 27 (hereinafter referred to as GWAPS). The very existence of clear, militarily achievable objectives may have been a decisive factor in the coalition's ultimate success, in contrast to the US experiences in Vietnam and Korea. The devotion of Schwarzkopf and his planners to keeping these objectives explicit throughout the planning process is a second clear lesson of Desert Storm.

9. Bob Woodward, *The Commanders* (New York: Simon & Schuster, 1991), 341.

10. Allison, 5.

11. It does not follow that AirLand Battle doctrine was flawed. Particularly in the context of its primary aim of countering a Soviet offensive in Europe, AirLand Battle was an effective strategy.

12. GWAPS, vol. 1, pt. 1, 17.

13. Allison points out that standard scenarios can be slow to change. Allison, 84.

14. Mann, 173.

15. *Ibid.*, 29.

16. GWAPS, vol. 1, pt. 2, 50-54.

17. Stephen Peter Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca, N.Y.: Cornell University Press, 1991), 12.

18. *Ibid.*, 105.

19. Allison, 171.

20. GWAPS, vol. 1, pt. 1, 87.

21. Warden, 128.

22. Colin Powell, interview, *Frontline: The Gulf War* (WGBH: Show no. 1407T, 9 January 1996); on-line, Internet, 19 March 1998 available from <http://www.pbs.org/wgbh/pages/frontline/gulf/oral/powell/2.html>.

23. Report of the Quadrennial Defense Review (Washington, D.C.: Department of Defense, May 1997), 27 (hereinafter referred to as QDR).

24. National Defense Panel, *Transforming Defense: National Security in the 21st Century* (Arlington, Va.: National Defense Panel, December 1997), 1 (hereinafter referred to as NDP).

25. *Ibid.*, 8.

26. *Ibid.*, vii.

27. John Donnelly, "Top Marine: Bring Bankers and Greenpeace on as Planners," *Defense Week*, 24 November 1997, 9.

28. William E. Odom, "Transforming the Military," *Foreign Affairs* 76, no. 4 (July/August 1997): 63.

29. NDP, 70.

30. News release, Office of the Assistant Secretary of Defense (Public Affairs), no. 252-98, 21 May 1998.

31. William S. Cohen, Secretary of Defense Response to the National Defense Panel Final Report, 15 December 1997; on-line, Internet, 19 March 1998, available from <http://www.dtic.mil/ndp/comments/secdefcom.pdf>.

32. John Donnelly, "Bases in Korea and Mideast to Get Bio-Warning Networks," *Defense Week*, 26 January 1998, 1.

33. It should also be noted that the contrast between success and failure for ACTDs such as these can have many root causes which themselves are microcosms of Allison's three models: rational (costs of program do not justify gains discounted by probability of success), organizational (radical technologies call

for more flexible acquisition processes than do incremental improvements), and bureaucratic politics (programs which could lead to force structure changes are more likely to threaten a constituency base in Congress and to lack an experienced corps of military officers who appreciate their value).

34. Barbara Levitt and James G. March, *Annual Review of Sociology* 14 (1988): 333-35.

35. QDR, 20.

36. Thomas S. Moorman Jr., "The Space Revolution," in Jacob Neufeld, George M. Watson Jr., and David Chenoweth, eds., *Technology and the Air Force: A Retrospective Assessment* (Washington, D.C.: United States Air Force, 1977), 261.

37. Paul G. Kaminski, "Low Observables: The Air Force and Stealth," in *ibid.*, 307.

38. *Ibid.*, 308.

39. For example, prior to Desert Storm, planners had to trust in the F-117's purported capabilities. Their lack of direct experience with the F-117, fully three years after it had begun to emerge from being a "black" program, introduced an element of increased risk.

40. Allison, 172-73.

41. One promising means of avoiding this outcome has been developed by the Net Assessment Office within the Office of the Secretary of Defense. These so-called Transformation Games, which allow decisions to play out over a simulated period of several years, give decision makers a means of perceiving the cascading effect of their actions on RMA implementation.

Education makes a greater difference between man and man than nature has made between man and brute.

—John Adams

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