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New Research on Span of Command and Control: Implications for Designing Army Organizations

J. Patrick Ford
HumRRO

William J. Mullen III
BDM Federal, Inc.

Richard E. Christ
U.S. Army Research Institute

Armored Forces Research Unit
Barbara A. Black, Chief

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EDGAR M. JOHNSON
Director

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Robert E. Solick

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14. ABSTRACT *(Maximum 200 words)*:

From September 1993 to March 1994, a team of two behavioral scientists and a retired general officer interviewed 55 Army officers on factors that affect the span of effective command and control. The interviews were structured around seven factors: Task Characteristics, Organizational Structure, Complexity of Environment, Unit Continuity, Technology, Individual Characteristics, and External Organizations. The first section of this report presents recommendations on forming a joint task force for contingency operations. These recommendations are keyed to comments made during the interviews by 11 general officers who held senior positions in contingency operations. The second section presents conclusions and recommendations for organizing Army units for warfighting operations. These conclusions and recommendations are based on ratings and comments made by officers at echelons from company to corps and from combat, combat support, and combat service support units. Ratings on the impact of each factor as well as comments made during the interviews suggest that the impact of the factors varied as a function of both echelon and type of unit. Recommendations for design are drawn from the study conclusions about each factor as well as directly from those made by some officers.

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NEW RESEARCH ON SPAN OF COMMAND AND CONTROL: IMPLICATIONS FOR DESIGNING ARMY ORGANIZATIONS

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BACKGROUND

From September 1993 to March 1994, a team of two behavioral scientists and a retired general officer interviewed 55 Army officers on factors that affect the span of effective command and control. The interviews were structured around seven factors that had been proposed as affecting the span of effective command and control (Wenzel & Christ, 1993). The factors are listed in Table 1. As shown within parentheses in this table, the names and scope of the factors evolved slightly over the period of interviews.

The data collection approach (Ford & Mullen, 1994) was to conduct a series of interviews with commanders and staff who had recently been involved in contingency operations or in warfighting operations. The contingency operations included force projection (Panama) and operations other than war (OOTW). The warfighting operations included missions in the Battle Command Training Program (BCTP), National Training Center (NTC), Joint Readiness Training Center (JRTC), OPERATION DESERT STORM, and a command post exercise (CPX).

This report summarizes the results of those interviews. The first section describes the approach for interviews on contingency operations and presents recommendations on forming a joint task force (JTF) for contingency operations. The second section describes the approach for interviews on warfighting operations. It then presents for each factor an overview of the results obtained, a summary of the conclusions derived from those results, and a detailed breakdown of positive and negative statements made during the interviews. The second section ends with a discussion of some major implications for designing Army organizations drawn from the study conclusions as well as over a dozen recommendations drawn directly from the comments of some of the officers interviewed.

Table 1

Factors Affecting Span of Effective Command and Control

Factor	Elements
Task Characteristics	• Tasks on Mission Essential Task List (METL) • Extent units had to coordinate with each other • Amount of specialized knowledge required by tasks
Organizational Structure	• Number of units controlled • Type of units • Composition of units • Structure of staff
Complexity of Environment	• METT-T factors • Ambiguities • Constraints
Technology	• Communication equipment • Tactical command and control systems
Individual Characteristics (Originally Leader Characteristics)	• Commander's training and experience • Training and experience of subordinate leaders • Quality of staff (originally related to organizational structure) • Leader traits of commander and subordinates
Unit Continuity (Originally History)	• Extent of members' experience with organizational structure • Extent of members' experience with unit standard operating procedures (SOP) • Shared experience among leaders and staff • Experience with similar missions
External Organizations	• Military commands outside normal Army channels (e.g., headquarters [HQ] of joint and allied forces) • Government organizations such as civilian government officials (e.g., mayors) and agencies (e.g., Federal Emergency Management Administration [FEMA]) • Non-governmental organization (NGO), United States (U.S.) (e.g., American Red Cross) and foreign (e.g., Red Crescent)

Note. METT-T = mission, enemy, terrain, troops - time available.

CONTINGENCY OPERATIONS

Approach for Interviews on Contingency Operations

The interviews related to contingency operations focused on senior commanders and staff. Project staff interviewed 11 officers. The duty positions of the officers at the time they participated in the operations of concern are shown by operation in Table 2.

Table 2

Duty Position by Operation for Interviews on Contingency Operations

Operation	Position during operation
Panama: SAND FLEA, JUST CAUSE, PROMOTE LIBERTY	• Brigade Commander • Division Commander • Commander JTF-Panama/Deputy Commander JTF-South • Southern Command J3
RESTORE HOPE (Somalia)	• Army Force (ARFOR) Commander (Division Commander)
Peacekeeping Force in Sinai	• Battalion Task Force Commander
Support to Los Angeles Authorities (Los Angeles riot response)	• JTF J3
PROVIDE RELIEF (Hurricane Andrew)	• Commander JTF-Army • Deputy Commander JTF-Army • Chief of Staff JTF-Army • J3 JTF-Army

Note. Southern Command had overall responsibility for operations in Panama; J3 is the operations and plans officer on the staff of the JTF.

With one exception (PROVIDE RELIEF, Commander [CDR] and Deputy Commander [DCDR]) officers were interviewed individually. Read-ahead materials (Appendix A) were provided to all officers to set the framework for the interviews. While the framework was structured by the seven factors proposed as affecting the span of effective command and control, most of the interviews were relatively free-ranging discussions of the mission, oriented largely toward lessons learned regarding organizing a JTF. Because of time constraints, the following interviews were oriented directly on the seven factors: the JTF J3 for support to Los Angeles – Riot Response and the Commander, Deputy Commander, and Chief of Staff (CoS) for PROVIDE RELIEF.

Recommendations Relevant to Formation of JTFs for Contingency Operations

The principal results of the interviews on contingency operations are the tape-recorded comments made by the officers being interviewed. Members of the project team transcribed comments related to the difficulty or ease of command and control in the operations being discussed. Taken across interviews, these results reflect a wide range of opinions related to various considerations in forming JTFs. The transcriptions of the comments, as well as ratings provided by the officers for workload and mission success, are included as a database in Appendix B.

Project staff derived a series of 16 recommendations for how to form a JTF based on their analysis of these comments. Furthermore, the project staff associated the recommendations to five of the seven factors proposed as affecting the span of effective command and control. These recommendations, each designated by a preceding arrow symbol, are presented in this section, grouped by the factor to which they are associated. Following each recommendation, we present a summary of each of several comments, each preceded by a dot symbol, that we interpreted to support the observation. The citation given in parentheses following each comment identifies the location where the full comment can be found in the database. As an example of the identification provided for the comment summaries, the first comment presented to support the first recommendation given below, is located in the database for the factor of task characteristics (Appendix B, Page B-15) for the interview of a Division Commander of JUST CAUSE.

Task Characteristics.

⇒ **Maintain emphasis on warfighting missions to prepare companies and platoons for OOTW.**

- Changes to METL for OOTW not justified.
  (JUST CAUSE: Division Commander [Div CDR]--Task Characteristics)
- Keep focus on warfighting operations.
  (RESTORE HOPE: Div CDR--Task Characteristics)
- Address rules of engagement (ROE) and civilian/military matters in professional development [keeping prime focus on warfighting missions].
  (PROMOTE LIBERTY: Div CDR--Task Characteristics)
- Adjust emphases:
  - Emphasize military operations on urbanized terrain (MOUT), especially with mix of friendly and enemy inhabitants.
    (JUST CAUSE: Brigade Commander [Bde CDR]--Task Characteristics)
  - Establish staff training exercise on ROE.
    (JUST CAUSE: Bde CDR--Task Characteristics)
  -Train soldiers for transition from combat mindset to one appropriate for peacekeeping while retaining alertness for security.
    (SINAI: Task Force [TF] CDR--Task Characteristics)

- Military Police are trained in skills required for OOTW.
  (JUST CAUSE: Bde CDR--Task Characteristics)

⇒ **Develop leader training related to contingency missions for battalion commanders and higher.**

- Train skills on negotiation and develop data bank of information on clan leaders, quasi-political leaders, and NGOs.
  (RESTORE HOPE: Div CDR--Task Characteristics)
- Army or FEMA should conduct annual training [for predesignated augmentation officers], using the BCTP model, on natural disasters.
  (PROVIDE RELIEF: JTF J3--Task Characteristics)
- [A dissenting view] Do not need special training beyond what is currently done within the Continental United States Army (CONUSA).
  (PROVIDE RELIEF: JTF CDR--Overall, General)
- Need specialized CPX for MOUT. Staff needs to work through problems such as dealing with sewer system, communication centers, and refugees.
  (JUST CAUSE: JTF DCDR--Overall, General)
- [Needed more than] limited training to prepare for sensitive issues in dealing with Egyptian and Israeli forces, as well as the intensity of scrutiny.
  (SINAI: TF CDR--Task Characteristics)

Organizational Structure.

⇒ **Base JTF HQ on a current Department of Defense (DOD) organization.**

- Corps provided standing capability to integrate indirect fire, direct fire, and maneuver.
  (JUST CAUSE: JTF J3, JTF DCDR--Organizational Structure)
- U.S. Army South staff officers were integrated well as deputies to corps staff principals.
  (JUST CAUSE: JTF DCDR--Organizational Structure)
- CONUSA staff officers became deputies to the JTF staff principals.
  (PROVIDE RELIEF: JTF CDR--Organizational Structure)
- [JTF-S Commander] filled vital role as Deputy JTF-Panama Commander.
  (PROMOTE LIBERTY: Div CDR--Organizational Structure)
- CONUSA provides knowledge base for disaster relief.
  (PROVIDE RELIEF: JTF CDR--Organizational Structure)
- Base on 3-star HQ (e.g., Army corps).
  (RESTORE HOPE: Div CDR--Organizational Structure)
- Division can be ARFOR if augmented by communications.
  (RESTORE HOPE: Div CDR--Organizational Structure)

- Ad hoc JTF staff hindered effectiveness.
  (Los Angeles Riots: JTF J3--Overall, General)

⇒ **Augment base with predesignated cell.**

- Pacific Command has apparently formed a cell of 20+ who train together and would bring the perspective of its Commander in Chief (CINC) to a JTF.
  (RESTORE HOPE, Div CDR--Organizational Structure)
- Augmentation package should be identified for each type of operation, and the operations should be trained in professional training.
  (JUST CAUSE, JTF J3--Overall, General)
- Predesignate officers who will augment an Army staff for disaster relief. Army or FEMA should then conduct annual training, using the BCTP model.
  (PROVIDE RELIEF, JTF J3--Task Characteristics)

⇒ **Provide robust staff early, then adjust.**

- Workload tends to be greatest early in the contingency; it then declines somewhat and stabilizes:

  - Workload (10-point scale): 10 early, 7 or 8 once organization was in place.
  (PROVIDE RELIEF: JTF CDR--Overall, Specific)

  - Workload = 7 once organization was in place.
  (PROVIDE RELIEF: JTF DCDR--Overall, Specific)

  - Workload initially 10, then 7.
  (Los Angeles Riots: JTF J3--Overall, Specific)

- High early demands for emergency services coincided with the greatest turbulence in building the staff.
  (PROVIDE RELIEF: JTF CoS--Complexity of Environment)
- Include noncommissioned officers (NCOs) early.
  (PROVIDE RELIEF: JTF CoS--Organizational Structure)

⇒ **Increase number of civil-military operations officers.**

- Need significant augmentation of the civil affairs section.
  (JUST CAUSE: Div CDR--Organizational Structure)
- Extensive requirement for brigade and battalion civil-military staff officers.
  (RESTORE HOPE: Div CDR--Organizational Structure)
  (SINAI: TF CDR--Organizational Structure)

⇒ **Structure JTF so Special Operations Forces report to JTF commander (vice CINC).**
  (JUST CAUSE, JTF DCDR--Organizational Structure)
  (JUST CAUSE, JTF J3--Organizational Structure)

⇒ **Establish and maintain clear chain of command relationships.**

- In tasking, law enforcement agencies requested numbers of soldiers ("temp agency"); Army insisted on maintaining squad/platoon structure.
  (Los Angeles Riots: JTF J3--Organizational Structure)
- Command and control was complicated by difference between formal and actual chains: Multinational Force and Observers (MFO) CDR was a foreign officer and, therefore, did not command the TF. TF CDR was formally commanded by MFO Chief of Staff.
  (SINAI: TF CDR--Organizational Structure)
- Several thousand reserve component (RC) volunteers were deployed, mostly civilian policemen; they did not have the structure to train Panamanian Defense Force to be police.
  (JUST CAUSE: Div CDR--Organizational Structure)

Complexity of Environment.

⇒ **Resource and structure to compensate for size of area of operations (AO).**

- Chief of Staff: Commander spent little time at his HQ and needed the Chief of Staff to coordinate the staff.
  (JUST CAUSE: Div CDR--Organizational Structure)
- Establish areas of responsibility to correspond to cultural and political boundaries. Initial failure to do so increased number of people to coordinate with and the number of people coordinating with a given government entity.
  (RESTORE HOPE: Div CDR--Complexity of Environment)
- Transportation:
  - Number of helicopter sorties planned was not adequate to cover the dispersed forces.
    (JUST CAUSE: Div CDR--Complexity of Environment)
  - Did not get the in-country support anticipated (e.g., helicopters).
    (JUST CAUSE: Div CDR--Complexity of Environment)
  - Took about 50 percent of organic vehicles--sufficient.
    (JUST CAUSE: Bde CDR--Complexity of Environment)
  - [Domestic] Early contracting for equipment (especially transportation) aids economic recovery and makes disengagement easier.
    (PROVIDE RELIEF: JTF CDR--Overall, General)

- Communications:
  - Communication is the backbone of peacekeeping operations--unit must have eyes on the target and get information on activity immediately to command group for evaluation. Should not have to fight for tactical satellite channels. (SINAI: TF CDR--Overall, General)
  - Division as ARFOR requires augmentation for communications; doubled size of the Signal Battalion. (RESTORE HOPE: Div CDR--Organizational Structure)
- Global Positioning System would have helped. (JUST CAUSE: Div CDR--Technology) (SINAI: TF CDR--Technology)

⇒ **Anticipate "mission creep."**

- Sources of mission creep in RESTORE HOPE (Div CDR--Complexity of Environment):
  - Implications of mission: Coordinate with government that was not in place--establish councils.
  - Added requirements: Disarm warring factions.
  - Unit-initiated efforts to enhance morale: Assist in schools.
  - Develop credibility with local leaders: Build roads.
- Sources of mission creep in PROVIDE RELIEF (JTF J3--Complexity of Environment):
  - Fill leadership vacuums.
  - Scope beyond NGO resources: DOD assumed housing emergency services function from Red Cross.

⇒ **Improve Human Intelligence (HUMINT) capability.**

- Accurate intelligence on likely enemy reactions not always heeded by higher HQ. (JUST CAUSE: DCDR--Complexity of Environment)
- Intelligence reports generally confused: "When an ally becomes an adversary, intelligence is lacking." (JUST CAUSE: Div CDR--Complexity of Environment)
- Information for MOUT needs to be more precise. (JUST CAUSE: Bde CDR--Complexity of Environment)
- Initial stages hindered by "strong but wrong" intelligence. Persistent problem with intelligence operations for low intensity conflict where units need to tailor operation based on HUMINT. Services are "intelligence challenged" in OOTW. (RESTORE HOPE: Div CDR--Complexity of Environment)

- Civil-Military activities provided opportunities for gathering information on possible terrorist activities.
  (JUST CAUSE: Bde CDR--External Organizations)
  (SINAI: TF CDR--Organizational Structure)

Individual Characteristics.

⇒ **Issue clear intent and guidance.**

- Clarity of mission key factor in ranking difficulty of Panama missions ('get tough' not a mission statement).
  (SAND FLEA: JTF CDR--Complexity of Environment)
- Ambiguity for subordinates was controlled by emphasis on a clear commander's intent.
  (JUST CAUSE: JTF J3--Complexity of Environment)
- Very high workload (9 on a 10-point scale), primarily because of lack of written guidance.
  (SINAI: TF CDR--Overall, Specific)

⇒ **Establish end-states early.**

- Commander established end-states and criteria--e.g., completion of Somali Road.
  (RESTORE HOPE: Div CDR--Individual Characteristics)
- Emphasized end-states for disengagement from the beginning--e.g., "tents down, trailers up."
  (PROVIDE RELIEF: JTF CDR--Individual Characteristics)
- With drawn down embassy staff, American commanders had lead in defining end-states--get Americans out; purge corrupt colonels; restore law and order.
  (PROMOTE LIBERTY: JTF DCDR--Individual Characteristics)

⇒ **Fill key staff positions with experienced officers.**

- Chief of Staff--Organize quickly, understand joint operations and how civilians are involved.
  (PROVIDE RELIEF: JTF DCDR & JTF CoS--Overall, General)
- J3--Need experience and maturity.
  (PROVIDE RELIEF: JTF DCDR--Overall, General)

- Disagreement about whether an intelligence officer should be on staff for domestic operations. An intelligence officer was not included for PROVIDE RELIEF:
  - Would have given a better assessment of needs than was available through operations channels.
    (JTF CoS--Organizational Structure)
  - Would not have added value.
    (JTF CDR--Organizational Structure)
- Special Staff:
  - Public affairs officer--Collocated with J3 by chance, but so important that a similar close relationship ought to be standard.
    (PROVIDE RELIEF: JTF J3--Organizational Structure)
    (PROVIDE RELIEF: JTF CoS--Overall, General)
  - Staff Judge Advocate--Gave valuable advice on laws of war and diplomatic concerns and explained the theory of ROE.
    (JUST CAUSE: Bde CDR--Organizational Structure)
  - Surgeon--Coordinated with Public Health Service.
    (PROVIDE RELIEF: JTF CoS--Organizational Structure)
  - Protocol Officer/Section was vital.
    (PROVIDE RELIEF: JTF CoS--Organizational Structure)
  - Protocol Officer/Section would have been useful.
    (SINAI: TF CDR--Organizational Structure)

External Organizations.

⇒ **Coordinate across services to maximize capabilities.**

- "Tone setting for jointness" avoided service biases.
  (JUST CAUSE: JTF J3--External Organizations)
- Air Force was very effective in coordinating deployment.
  (JUST CAUSE: Div CDR--External Organizations)
- Services brought unique capabilities: Air Force for Tactical Airlift Control; Navy "could repair anything." Mix of services created a dynamic that enhanced professionalism.
  (PROVIDE RELIEF: JTF CoS--Organizational Structure)
- Joint aspects gave the right kind of supply and services; great capability.
  (PROVIDE RELIEF: JTF DCDR--Organizational Structure)
- Joint aspects added needed capability, e.g., Navy was essential to port operations.
  (PROVIDE RELIEF: JTF CDR--Organizational Structure)

- [Coordination not automatic] Army did not have an impact on JTF planning. Army provided people but staff got so large it lost cohesiveness. (RESTORE HOPE: Div CDR--Organizational Structure)
- Extensive requirement for liaison officers (LNO) (higher HQ and coalition). (RESTORE HOPE: Div CDR--Organizational Structure)

⇒ **Incorporate volunteer and non-government agencies.**

- Organized help which could be focused (e.g., Mennonites) reduced burden on JTF, but only military could have handled magnitude. (PROVIDE RELIEF: JTF CDR, DCDR, J3--External Organizations)
- While involvement critical, NGOs and private voluntary organizations did not necessarily agree on end-states. (RESTORE HOPE: Div CDR--External Organizations)

WARFIGHTING OPERATIONS

Approach for Interviews on Warfighting Operations

Sample.

The interviews related to warfighting operations included officers at echelons from company to corps. The duty positions of officers for these interviews are summarized in Table 3. The double entries in Table 3 represent multiple interviews for the indicated position. In both cases, recently promoted general officers did not have experience in their indicated current positions (Assistant Division Commander and Division Chief of Staff), so they focused on a mission they remembered from when they were brigade commanders.

Table 3

Duty Position by Unit for Interviews on Warfighting Operations

Position	III Corps	2nd Armor Division	1st Cavalry Division	82nd Airborne Division
Corps Commander	X			
Corps Deputy Commander	X			
Corps Chief of Staff	X			
COSCOM Commander	X			
Division Commander		X	X	
Assistant Division CDR		X		X
Division Chief of Staff		X		X
Division G3		X		X
Division Deputy G3			X	
Brigade Commander		X X	X X	X
DIVARTY Commander		X	X	X
DISCOM Commander		X	X	X
Brigade S3		X	X	X
Battalion TF CDR		X	X	X
FA Battalion CDR		X	X	X
FSB CDR		X	X	X
Maneuver Company CDR			X	X
FA Battery CDR		X	X	X
Support Company CDR		X	X	X

Note. COSCOM = Corps Support Command; G3 = Assistant Chief of Staff, Operations and Plans (division or corps); DIVARTY = Division Artillery (brigade-size element); DISCOM = Division Support Command (brigade-size element; S3 = Training and Operations Officer on a battalion or brigade staff; FA = Field Artillery (FA battalion is subordinate to DIVARTY); FSB = Forward Support Battalion (FSB battalion is subordinate to DISCOM).

To assure relevant recent experience at the highest echelons, the interviews were scheduled to follow rotations to BCTP. Since echelons below division are not the focus of BCTP exercises, the missions covered in interviews of battalion and company commanders were from

rotations to NTC and JRTC, missions during Operation Desert Storm, or a command post exercise (CPX). The environments for warfighting operations are summarized by echelon[1] in Table 4.

Table 4

Mission Environment by Echelon for Interviews on Warfighting Operations

Echelon	BCTP	NTC	JRTC	DESERT STORM	Other CPX	Total
Corps	3	0	0	0	0	3
Division	9	0	0	0	1	10
Brigade	9	3	1	1	0	14
Battalion	1	4	3	1	0	9
Company	1	4	3	0	0	8
Total	23	11	7	2	1	44

Interview procedure.

The number of soldiers to be interviewed concerning warfighting operations made it necessary to modify the interview protocol to allow for some group interviews and to shorten the duration of individual interviews. Project staff increased the structure of the interviews through three modifications:

- Diagrams of potential command structures were developed for each position. Each commander then modified an appropriate diagram (rather than developing his own diagram).

- Each commander made direct ratings of the impact of each factor on command and control in the mission on a rating form. The scale ranged from Much Easier through No Impact to Much Harder.

- Most interviews[2] were conducted in a group format.

After rating the impact of each factor, each commander rated the success and workload (difficulty) of the mission. Most of the interview time was devoted to discussing the rationale for the rating of each factor. The "structured interview" procedures are included as Appendix C.

[1] The COSCOM Commander was considered to be at division echelon. The FA Battery commanders were considered to be at company echelon.

[2] Exceptions were the officers interviewed at corps, the COSCOM commander, division commanders, and division chiefs of staff.

Ratings of Impact of Factors in Warfighting Operations

As described earlier, officers rated the impact of each factor on command and control in the mission. To facilitate analysis of the results, numeric values were assigned to each rating category:

Much Easier	+3
Somewhat Easier	+2
Slightly Easier	+1
No Impact	0
Slightly Harder	-1
Somewhat Harder	-2
Much Harder	-3

After rating the impact of each factor, each commander rated the success and workload of the mission. The scale for success ran from 1 (Unsuccessful) to 5 (Completely Successful); the scale for workload ran from 1 (Low) to 10 (High).

The overall average rating of each factor by all echelons is shown in Table 5. The pattern of ratings is consistent with expectations for the Wenzel-Christ factors: Organizational Structure, Technology, Individual Characteristics, and Unit Continuity tend to make command and control easier; Complexity of Environment and External Organizations make command and control more difficult; and Task Characteristics do not have a consistent effect. The only unanticipated result is the somewhat weak impact of the organizational structure factor on the span of effective command and control.

Table 5

Mean Overall Impact of Factors

Factor	Impact
Task Characteristics	-.27
Organizational Structure	.83
Complexity of Environment	-1.68
Technology	1.27
Individual Characteristics	1.68
Unit Continuity	1.88
External Organizations	-.51

The average rating by echelon, given in Table 6, shows that the low impact for organizational structure was most notable at the battalion echelon. The results shown in this

table suggest that command and control at the battalion level is especially difficult. Besides perceiving low benefit from the structure, battalion commanders report high negative impact on effective command and control from complexity of environment and task characteristics. These findings may reflect relatively limited experience among subordinate commanders and staff, coupled with lack of time to plan and prepare operations at the battalion level.

Table 6

Mean Impact Rating by Echelon

Factor	Division N=10	Brigade N=14	Battalion N=9	Company N=8
Task Characteristics	1.40	-.79	-1.00	-.63
Organizational Structure	1.20	1.00	.11	.88
Complexity of Environment	-.90	-1.79	-2.67	-1.38
Technology	1.50	1.14	1.44	1.00
Individual Characteristics	1.80	2.00	1.56	1.13
Unit Continuity	1.90	1.79	1.89	2.00
External Organizations	-.40	-.71	-.67	-.13

The distribution of ratings within each echelon for each factor is shown in a series of figures in Appendix D. Those figures show the proportion of respondents at each echelon that chose each of the rating options for each factor.

The ratings for the factors proposed as impacting the span of effective command and control also show that some factors have a greater impact on Combat Service Support (CSS) units than Combat Support (CS) or combat (CBT) units. Table 7 shows the ratings for commanders and staff of CSS, CS (in this sample only field artillery), and CBT units. On the average, CSS commanders tend to report the greatest negative impact or the least positive impact for all the factors. The CSS officers report the most severe negative impact on span of command and control for the factors of task characteristics and complexity of environment. The greatest disparity in the ratings of officers from CSS units and those from the other types of units is for the factor of organizational structure. Officers from CSS units indicate that their current structure has a slightly negative impact on command and control. Officers from CS and combat units indicate that their organizational structure has a slightly positive and somewhat positive impact on command and control, respectively.

Table 7

Mean Impact Rating by Unit Type, Across All Echelons

Factor	CSS N=10	CS N=9	CBT N=22
Task Characteristics	-1.20	-.77	.36
Organizational Structure	-.50	1.67	1.09
Complexity of Environment	-2.20	-1.78	-1.41
Technology	1.10	1.11	1.41
Individual Characteristics	1.20	1.67	1.91
Unit Continuity	1.70	2.22	1.82
External Organizations	-.50	-.22	-.64

It should be noted that there were more division- and brigade-level respondents in combat units than in the other types of units. Because respondents from higher echelon units were more likely to rate the factors more positively than respondents from lower echelons, a separate analysis was performed of only the nine battalion-level respondents (all commanders) in this sample. As shown in Table 8, battalion-level commanders of all types of units rated the complexity of environment factor as a strongly negative influence on command and control. All battalion-level commanders also tended to rate the factors of task characteristics and external organizations as at least slightly negative influences on command and control. Commanders of combat battalions rated the impacts of technology and individual characteristics on command and control more positively than the CS or CSS battalion-level commanders. The CSS battalion-level commanders rated organizational structure as slightly negative and the factor of unit continuity as slightly positive while combat and CS battalion-level commanders rated these factors as slightly positive and moderately positive, respectively.

Table 8

Mean Impact Rating by Unit Type, Battalion Echelon Only

Factor	CSS N=3	CS N=3	CBT N=3
Task Characteristics	-1.00	-1.33	-.67
Organizational Structure	-1.00	1.00	.33
Complexity of Environment	-2.67	-2.67	-2.67
Technology	1.00	1.00	2.33
Individual Characteristics	1.33	.67	2.67
Unit Continuity	1.00	2.33	2.33
External Organizations	-1.00	-.33	-.67

In an attempt to examine the meaning of the factors, the officers' ratings of each factor were correlated with their ratings of experienced workload during the mission of concern and with their ratings of mission success. The project team expected a negative correlation between ratings of a factor's impact on command and control and ratings of experienced workload (more positive impact ratings of a factor would be associated with reduced workload). The project team expected positive correlations between ratings of a factor's impact on command and control and ratings of mission success (more positive ratings would be associated with increased success). The results of these analyses are summarized in Table 9. Contrary to expectations, there was no significant correlation between the ratings given to any of the seven factors and the ratings of workload. Two significant correlations were found between ratings of the factors and ratings of mission success, but they were not in the same direction. As expected, a significant positive correlation was found for ratings of the impact of technology on command and control and ratings of mission success. However, the factor of external organizations was significantly related to mission success in the direction opposite to that expected – lower or more negative ratings of the impact of external organizations were associated with higher ratings of mission success.

Table 9

Correlation of Factor Ratings with Ratings of Workload and Mission Success

Factor	Correlation	
	Workload	Success
Task Characteristics	.22	.24
Organizational Structure	.02	.12
Complexity of Environment	.00	-.09
Technology	.03	.42**
Individual Characteristics	.04	.26
Unit Continuity	-.18	.23
External Organizations	-.14	-.36*

* $p = .05$ (n=41). ** $p = .01$ (n=41).

Factor Comments

The results of the interviews on warfighting missions consisted of both the ratings (described in the previous section) and the comments made by officers during relatively open discussions of their rationale for the ratings given to the factors. The comments made during the discussions were tape recorded and subsequently transcribed by members of the project team. A database of the ratings and the transcriptions of the comments is given in Appendix E.

Project staff conducted a content analysis of comments in the database to identify any consistent themes occurring within and across echelons and types of units. Comments were grouped according their implied impact on the descriptive elements that underlie each of the factors presumed to affect the difficulty of command and control. (These factors and their elements are shown in Table 1.) Negative comments mean that the officer considered the element to have made command and control more difficult, while positive comments mean the element made command and control easier. In almost every instance, negative and positive comments were consistent with the impact of the element anticipated by Ford, Morrison, Mullen and Wenzel (1993). For example, a division officer at a Main command post (CP) commented that the experiences a staff had while previously working together made command and control easier; an officer at a Rear CP commented that lack of experience working together made command and control harder. Both comments confirmed the anticipated finding that staff experience workng together facilitates command and control.

The following sections present the results of this content analysis for each of the factors. These results address, whenever possible and appropriate, potentially meaningful partitions of the data according to the echelons or types of units to which the officers making the comments were assigned. There are three major subsections for the results given for each factor. First, an

Overview of the results obtained for the elements of the factor is presented along with the conclusions supported by the results. Second, a *Summary* is presented of the comments made by officers that support each conclusion. Third, for each factor, detailed *Results* are presented that gives the outcome of the content analysis of comments. These results show the frequency of different positive and negative comments made for that factor by officers in each echelon from corps to company.

Task Characteristics.

Overview.

The interview protocol concerning task characteristics asked officers to consider three elements: Whether required tasks had been addressed in METL-based training for their unit or subordinate units; extent of coordination with other units; and amount of specialized knowledge required by tasks. We had anticipated that proficiency on METL tasks would ease command and control (i.e., units trained on those tasks would require less supervision and allow larger spans of command and control than units who lacked the training); that the requirement to coordinate with other units would increase the difficulty of command and control; and that commanders of units that had to perform tasks with specialized knowledge requirements would have more difficulty with command and control. The results support only the first two of the expected conclusions:

- METL-based training on required tasks makes command and control easier.
- The requirement for coordination with other units increases the difficulty of command and control.

Summary of comments.

The task characteristics factor had an overall positive impact on extending the span of effective command and control at division level, but it had a negative impact at brigade, battalion, and company levels.

All officers with relevant comments had participated in an intense train-up prior to their mission. The impact of that METL training was positive at all levels, but, at levels below division, the difficulty of coordination was the dominant element. Amount of specialized knowledge required by the tasks was cited only twice.

Conclusion: METL based training on required tasks makes command and control easier. Sixteen officers at all levels reported that command and control was easier because units had been trained to perform the required tasks. However, the proportion of officers making the comment declined at lower levels. More than 75 percent of officers at division (7 of 9) reported that subordinate units knew the tasks because they were fundamental and covered during the train-up. Only about 30 percent of officers at brigade, battalion, and company (9 of 29) made a similar comment about their subordinates.

Conclusion: The requirement for coordination with other units increases the difficulty of command and control. Most of the officers at brigade, battalion, and company (17 of 29) commented that their own tasks were more difficult than they had anticipated despite being prepared on their METL. For example, a brigade commander commented:

"[We had] identified traditional tasks, knew what to do within specific mission. Brigade had plenty of tools for those. Made harder by requirement to coordinate with corps for artillery when other units were in the area."

The finding that coordinating with other units in a complex mission increases difficulty of command and control is not surprising. Development of complex battle simulations to train that coordination is, after all, a major justification for Combat Training Centers (CTCs). The success of the CTCs in replicating that complexity is reflected in Table 10, which shows that respondents at brigade and battalion levels consistently cited the environment produced by each CTC as complicating their ability to command and control. The first number in each cell is the number of officers who cited coordination as an element with a negative impact; the numbers in the parentheses show the number of officers at each level that reported on a mission at the CTC.

Table 10

"Coordination Hindered" Comments for Brigade, Battalion, and Company

CTC	Brigade	Battalion	Company	Percent
BCTP	6 (8)	0 (1)	0 (1)	60
NTC	2 (3)	3 (4)	1 (4)	55
JRTC	0 (1)	2 (3)	1 (3)	43
Percent	67	63	25	

The numbers in the percent cells result from dividing the number of negative comments by the number of officers reporting for the CTC and level. For example, 10 officers (8 at brigade, and 1 each at battalion and company) described a mission conducted in BCTP. Six (60%) of these officers (all at brigade) reported that coordination requirements hindered command and control during a BCTP exercise.

Results of the content analysis for task characteristics.

Corps (N=3)

2 Positive: Corps had mastered doctrine

1 Positive: Subordinate units trained on tasks (METL) in train-up

Division (N=9)

7 Positive: Subordinate units knew tasks
- 4 Fundamental tasks (METL)
- 2 Mastered tasks through train-up
- 1 Tasks clearly defined

2 Negative: Dependent on other units for intel

1 Positive: Log synch matrix allowed COSCOM to manage by exception

Brigade (N=13)

10 Mission more complex than METL tasks
- 9 Negative:
  - 3 Complexity made harder
  - 3 Mission required extensive coordination
  - 2 Difficult mission
  - 1 Assigned conflicting tasks
- 1 Positive: No conflicting tasks

4 Unit knew tasks
- 3 Positive
- 1 Negative: Variable levels of proficiency

1 Negative: Tasks required specialized information

Battalion (N=9)

5 Negative: Mission more complex than METL tasks
- 3 Mission required extensive coordination
- 2 Complexity made harder

3 Positive: Unit knew tasks

1 Negative: Stakes high (DESERT STORM)

1 Positive: Learned from preceding missions

Results (continued) of the content analysis for task characteristics.

Company (N=7)

4 Mission more complex than METL tasks

- 3 Negative: Complexity made harder
- 1 Positive: Less complex than usual

3 Positive: Unit knew tasks

- 1 Negative: Tasks required specialized knowledge and coordination

1 Negative: SOP changed

Organizational Structure.

Overview.

The interview protocol asked officers to consider three elements when determining the impact of organizational structure on the difficulty of command and control: Number of units controlled, the composition of units, and the structure of the staff. Several officers also discussed habitual task organization; commanders of CSS units introduced number of units supported.

Comments about staff structure tended to overlap with comments related to individual characteristics about the quality of staff members. Comments about staff for this factor have been consolidated with comments about staff for individual characteristics and are discussed under that factor. Similarly, some commanders discussed habitual task organization under unit continuity; those comments are described in this section.

Comments on organizational structure (excluding those related to staff) were concerned with the number of units controlled and supported and the extent of habitual task organization. These comments suggest different conclusions on spans of command and control depending on type of unit. In general, the comments confirm the expected benefits of habitual task organization. The specific conclusions are:

- Current organizational structure in terms of the number of units controlled and supported during combined arms operations may be close to the limits of effectiveness for CSS commanders.
- Current organizational structure in terms of the number of subordinate units is appropriate for CS and combat commanders.
- Habitual task organization eases command and control.

Summary of comments.

Organizational structure did not have a consistent impact at any level. The impact seemed to be determined by the type of unit (CSS, CS, or combat) and by the degree of habitual task organization.

Conclusion: Current organizational structure in terms of the numbers of units controlled and supported during combined arms operations may be close to the limits of effectiveness for CSS commanders. Ten officers identified number of units as an element that made command and control difficult. Seven of these ten officers were commanders of CSS units--COSCOM, DISCOM, FSB, and support companies. Only three CSS respondents (two DISCOM commanders and one FSB commander) did not cite number of units as an element that made command and control more difficult. Except for comments from the COSCOM commander, CSS commanders reflected concern about number of units supported as well as number of units controlled. It should be noted that both of these aspects of organizational structure (i.e., both the number of subordinate units commanded and the number of units supported) are related also to the requirement to coordinate with other units, as described previously for the factor of task characteristics.

Of the officers interviewed in this project, the COSCOM commander commanded and controlled by far the largest number of subordinates. He identified 60 people involved simultaneously in preparing the synchronization plan. He reported monitoring 12 battalions with 59 company equivalents. Finally, he stated that deployment would increase his span of command and control threefold.

Comments by DISCOM commanders suggest that their command and control was affected primarily by the number of units they supported. The only DISCOM commander to rate organizational structure as hindering command and control was responsible for controlling seven subordinate units (three FSB, main support battalion [MSB], medical group, corps support battalion and a medical logistics detachment), but he supported a much larger number of corps and division units.

Two FSB commanders cited number of subordinate units and number of supported units as elements that increased difficulty of command and control. Both controlled 12 units. One commander described the units by level: seven companies (supply, maintenance, medical, and four HQ & HQ units); three platoons (engineer company trains, signal, military police); and two sections (military intelligence [MI] and chemical). The other commander emphasized the difficulty of command and control imposed by additional CSS units in the brigade support area (BSA). Although the spans of command and control are large, the difficulty reported by the commanders may also be attributable to a lack of experience in working on exercises with field trains.

All three support company commanders reported difficulty with their span of command and control. Only one commander controlled by platoon: The medical company commander controlled five platoons (ambulance platoon, transportation movement team, and three medical platoons) and was responsible for evacuation for other units in his AO (e.g., signal and MI). One maintenance company commander controlled 14 elements in four platoons (motor pool, shop

office, supply, technical supply, auto, armament, service, missile, electronics repair, engineer, and four maintenance support teams). The other maintenance company commander also managed by section because of the different missions within platoons: Motor pool, technical supply, shop office, missile repair, electronics repair, armament repair, and mechanical maintenance.

Conclusion: Current organizational structure in terms of the number of subordinate units is appropriate for CS and combat commanders. The only combat support officer to report a problem with number of units was an FA battalion commander who coordinated with six units in the absence of DIVARTY: Division Fire Support Element, two ground maneuver battalions, an aviation battalion, and a tank team. This FA officer reported that the absence of DIVARTY as a higher headquarters to provide command and control had more impact than the number of units he directly controlled.

Two officers in combat units cited the number of subordinate units as increasing the difficulty of command and control. One of the five brigade commanders reported nine units under his control: Three maneuver battalions, direct support battalion, FSB, engineer battalion, attack battalion, air defense artillery battery, and military police platoon. The particular area of difficulty was coordination of fires, which was complicated by higher echelon units in the AO. Nine subordinate units were near the high end of the brigade sample; other brigades reported from 6 to 11 subordinate units.

One combat battalion-level commander also cited nine subordinate units (plus a tactical operations center and a tactical command post) as an element in slightly increasing the difficulty of command and control. The subordinate units for this commander included the following: four maneuver companies, engineer company, direct support battery, scout platoon, and mortar platoon. That number of subordinate units was not high in relative terms: Other battalion commanders reported eight or nine units in their organizational structure. The key consideration for this commander is probably related to the nature of the mission he chose to use for this study -- Desert Storm--which the commander characterized as inherently more difficult than CTC operations because of the "high stakes."

Conclusion: Habitual task organization eases command and control. Twelve officers cited habitual task organization as a factor that affected the difficulty of command and control: Five comments were positive (having the habitual relationship made control easier); seven were negative (the lack of habitual relationships made command and control more difficult). The comments were made in relation to both organizational structure (eight comments) and unit continuity (four comments).

Four of the five positive comments concerned benefits of having experience working with individual commanders. Two were maneuver commanders (brigade and company), one was a FA battalion commander, and the fourth was an FSB commander. The FA and FSB commanders cited familiarity with commanders of supported units. The benefits resulting from the personal experience among commanders were that the commander knew what to expect from subordinates and subordinate and supporting commanders could more readily understand the commander's

intent. The fifth positive comment on habitual task organization was a reference by a FA battalion commander to developing familiarity with maneuver brigade procedures.

Seven officers said that the lack of habitual task organization made command and control more difficult. Three cases concerned the mechanics of cross-attachment: DIVARTY and maneuver company commanders cited uncertainty about when responsibility for attached units would begin; a brigade S3 cited lack of clarity about the relation (operational control or merely attached) of the brigade to corps. In two cases (FA battalion and TF commander), the problems stemmed from what the commander thought was lower technical skill of attached units (e.g., did not know doctrine). The remaining two cases (TF commander and FA battalion commander [under unit continuity]) cited unfamiliarity with specific unit procedures.

Results of the content analysis for organizational structure.

Corps (N=3)

3 Positive: Quality of staff

1 Positive: Military Police critical in rear area

1 Positive: Clarity of structure

1 Positive: Structured briefing formats

Division (N=10)

5 Quality of staff
- 1 Positive: Staff stable during train-up
- 3 Negative:
  - 2 Division rear CP (DREAR) lacks talent of Division main CP (DMAIN) and division tactical CP (DTAC)
  - 1 DMAIN lacks depth
- 1 Mixed: DMAIN staff competent but lack depth

4 Positive: Clarity of structure
- 3 Doctrinal, standard structure
- 1 Commanders comfortable with structure

2 Number of units
- 1 Positive: No additional units
- 1 Negative: 59 company equivalents

2 Positive: Clear responsibility by battle phase

1 Positive: Special operations forces (SOF) filled void

1 Positive: Special operations command and control element (SOCCE) should be in DTAC (vice DMAIN)

1 Negative: Composition of active and reserve components made command and control harder

Results (continued) of the content analysis for organizational structure.

Brigade (N=14)

4 Number of units
- 2 Positive: Fewer units than normal
- 2 Negative: Too many units

2 Positive: Good staff structure

2 Habitual task organization
- 1 Positive
- 1 Negative: Elements of corps artillery units chopped at various times; relation to corps not clear

2 Understanding of mission
- 1 Positive: Separate FA brigade HQ coordinated counterfire
- 1 Negative: Reinforcing FA brigades did not understand doctrine

1 Positive: Multi-functional DISCOM

1 Positive: Benefited from division assets

1 Positive: Level of teamwork

1 Negative: Faulty coordination with SOF (junior officer liaison)

1 Negative: Relation to higher HQ unclear

Battalion (N=9)

5 Experience of staff and command team
- 3 Positive: Team experienced
- 2 Negative: Team inexperienced

4 Negative: Number of units

2 Positive: Quality of staff

2 Negative: Lacked habitual task organization

1 Negative: Forced to restructure to accommodate changes to plan

1 Negative: Lacked higher HQ in field

1 Negative: SOP incomplete; not understood

Results (continued) of the content analysis for organizational structure.

Company (N=8)

3 Number of units
- 1 Positive: FA battery top heavy
- 2 Negative: Too many units to support

2 Diversity of functions
- 1 Positive: Cross-attached infantry did not dismount
- 1 Negative: Managed by section

2 Habitual task organization
- 1 Positive: Habitual with supported
- 1 Negative: Did not know when to expect anti-tank and tank platoons

Complexity of Environment.

Overview.

When officers rated the impact of complexity of environment, they were asked to consider METT-T factors, ambiguities, and constraints. These officers stressed the impact of terrain as the most significant METT-T factor. Comments on ambiguity concerned quality of intelligence information and uncertainty about procedures. No one constraint was cited consistently, although several officers cited a reduction in time to prepare a defense as an element that made command and control more difficult. The comments suggested three conclusions:

- Difficult terrain decreases span of effective command and control.
- Ambiguities about the situation due to inaccurate or incomplete intelligence increase difficulty of command and control.
- Ambiguities about operational procedures increase difficulty of command and control.

Summary of comments.

We had anticipated that more complex operational environments would decrease span of command and control. As expected, the factor had a negative impact at all levels. The impact was most severe at battalion level. All battalion commanders rated complexity of environment as having at least a moderate negative impact; most rated the impact as strongly negative. That was the most pronounced impact of any factor at any level. Battalion commanders cited the same elements--difficult terrain, inadequate intelligence information, and operational ambiguities--as officers at other levels, but the effects were consistently more negative.

Conclusion: Difficult terrain decreases span of effective command and control. Sixteen officers cited difficult terrain as influencing the difficulty of command and control. The four citations at division level were positive, though it should be noted that the BCTP environment allowed frequent face-to-face contact for coordination and other interactions. While the result is an aberration due to the simulation, it suggests that a major part of the relation between terrain and command and control is the impact on the ease of direct personal contact between the

commander and his subordinates. Negative terrain factors can reduce direct personal contacts and disrupt frequency modulation (FM) radio connections.

The 12 citations at brigade, battalion, and company levels described how terrain made command and control more difficult. Three brigade officers referred explicitly to the size of the AO: Two reflected the reduction in face-to-face contact (in one case an S3 commented on the need for the staff to be able to function in his absence); the third comment was that the combination of distance and inadequate range of radios reduced the quality of intelligence information. The remaining nine comments on terrain concerned restrictions on movement and heat. The comments on heat (mainly JRTC) concerned exhaustion of the commander and subordinates and the need to monitor work, especially under conditions of mission-oriented protective posture.

Conclusion: Ambiguities about the situation due to inaccurate or incomplete intelligence increase difficulty of command and control. Sixteen officers cited inadequate intelligence information as detracting from command and control. The three division comments probably reflected artificialities of the simulation within BCTP (e.g., enemy activity that normally can be expected to be detected was not revealed). The one brigade comment (also described for terrain) concerned reduced collection of intelligence information because the range of radios was inadequate for the size of the area of operations.

The impact of ambiguity created by inadequate intelligence information was most pronounced at battalion and company levels, which provided 12 of the comments. Almost all battalion officers (7 of 9) cited inadequate intelligence information; four cited terrain analysis in particular. Three of those citations related to the move of JRTC from Fort Chafee to Fort Polk (which probably increased the realism of the simulated contingency operations since units could not rely on previous terrain analyses). Most company commanders also reported being hampered by intelligence information: Two lacked information on location of units and obstacles, and two lacked information on the terrain.

Conclusion: Ambiguities about operational procedures increase difficulty of command and control. Eleven officers reported uncertainty about operational procedures, specifically, the role of higher commands (one comment from division), supply procedures (three comments from brigade and one from company), rules of engagement (two comments each from brigade and battalion), and the lack of knowledge about friendly units in the AO (one comment each from brigade and company). Most of these comments also could have been the result of lack of habitual task organization, an element of the factor of organizational structure, and of the absence of experience with subordinates and staff, an element of the factor of unit continuity.

Results of the content analysis for complexity of environment.

Corps (N=3)

2 Positive: Environment simple

1 Negative: Time constrained by need to respond to mentors

Division (N=10)

4 Positive: Environment simple
- 3 Straight-forward scenario
- 1 Ambiguities scripted out

3 Negative: Intelligence information inadequate (probably artifact of BCTP)
- 1 Some enemy assets hidden
- 1 Had to rely on corps
- 1 Did not get expected return from intelligence

1 Negative: Thinking enemy

1 Negative: Information from many sources

1 Negative: Role of corps ambiguous

Brigade (N=13)

3 Negative: Large area of operation
- 1 Distance made control harder
- 1 Radios lacked range (inadequate intelligence)
- 1 Travel increases absence of commander and S3 (Staff unable to function)

3 Negative: Status of support unclear
- 2 Supply status ambiguous
- 1 "Plug," did not know procedures for resupply and commo

2 Negative: Difficult enemy

2 Negative: Difficult physical environment

2 Negative: Rules of engagement not clear

1 Negative: Unknown units in area of operation

1 Negative: Large number of units

Results (continued) for the content analysis of complexity of environment.

Battalion (N=9)

4 Negative: Time constrained
- 3 Plan changed, reducing time to prepare defense
- 1 Insufficient preparation time scheduled

4 Negative: Terrain analysis inaccurate

4 Negative: Hostile environment (heat and distance)

3 Negative: Lacked intelligence information

2 Negative: Rules of engagement unclear

1 Positive: Close coordination with higher command

1 Negative: Night attack

Company (N=7)

3 Negative: Heat

3 Negative: Unfamiliar with terrain

2 Negative: Ambiguous conditions
- 1 Uncertainties ("chaos") of air-drop
- 1 Ambiguity about location of obstacle belt

2 Negative: Ambiguities about operations
- 1 Had to be proactive for support
- 1 Ambiguity about units in rear

1 Negative: Changes to plan

1 Negative: Time constrained

1 Negative: Lacked smoke

Technology.

Overview.

Officers considered communication equipment and tactical command and control systems when they assessed the impact of technology. While technology was seen generally as having the potential for a positive effect on span of effective command and control, many officers expressed concerns about the effectiveness of some systems and concerns about side effects of some technology. Comments supported two conclusions:

- Availability of technology makes command and control easier at division level and within the airborne division, but results are mixed for lower echelon units.

- Technology imposes hidden costs, especially at lower echelons.

Summary of comments.

The rated impact of technology overall was positive at each level, but the opinions of officers below division level were divided. That pattern is illustrated in Table 11. This table summarizes the distribution of positive and negative comments for the three systems that were the most frequent subject of comments: the Maneuver Control System (MCS), All-Sources Analysis System (ASAS), and Mobile Subscriber Equipment/Single-Channel Ground/Airborne Radio System (MSE/SINCGARS). Division officers were positive on all three systems. Brigade officers were positive on MSE/SINCGARS, but negative on MCS and ASAS. Battalion officers were negative on MCS and divided on MSE/SINCGARS. Company commanders were divided in their opinions about the impact of MSE/SINCGARS. It should be noted that officers at division echelon and higher are major recipients of the information made possible by these three systems. Officers at the lower echelons may also receive useful information from these three technology systems but they also are responsible for inserting information into the systems for the use of their higher command echelons.

Table 11

Distribution of Comments on Impact of Technology Systems

System	Impact	Division	Brigade	Battalion	Company	Total
MCS	Easier	4	0	0	0	4
	Harder	1	4	2	0	7
ASAS	Easier	5	1	0	0	6
	Harder	0	3	0	0	3
MSE/ SINCGARS	Easier	7	6	4	5	22
	Harder	0	1	3	4	8
Total	Easier	16	7	4	5	27
	Harder	1	8	5	4	14

Conclusion: Availability of technology makes command and control easier at division level and within the airborne division, but results are mixed for lower echelon units. Table 12 summarizes the impact ratings of technology by officers who used CTC missions as a basis for describing the impact of the factors on their span of command and control (i.e., excluding DESERT STORM and a CPX). For example, of four brigade level officers in the airborne division who were interviewed, three gave an impact rating of Much Easier and one gave a rating of Slightly Harder. Using the numeric values of the scale categories given on Page 14, the average impact was 2.00 (8 divided by 4 raters).

As shown in Table 12, leaders at division level seemed to benefit most from technology. The benefit resulted from providing leaders with a more nearly complete "picture" of the battle. The only negative comment at division about the available systems was that MCS was outdated.

Table 12

Average Impact of Technology by Echelon and Type of Division

Type of Division	Division	Brigade	Battalion	Company
Airborne	2.67	2.00	2.67	0.67
Heavy	1.33	0.56	0.40	1.20

The airborne division appeared to benefit more from technology than heavy divisions. The explanation for the different perceptions between the types of divisions is a matter of speculation. It may be that the two types of divisions have different frames of reference toward the benefits of technology on command and control. In this context, officers from the airborne division may perceive dramatic benefits of new technology based on their prior limited access to advanced technology. On the other hand, officers in the heavy divisions may perceive only incremental additional benefits based on their prior exposure to and benefit from communications and intelligence technology.

Conclusion: Technology imposes hidden costs, especially at lower echelons. Much of the ambivalence about technology, especially at levels below division, results from "costs" of the technology. The types of costs are illustrated by comments made by a brigade commander (from a heavy division):

> Overall, technology made it easier to transfer information; but there were problems: (a) The [Combat Service Support Control System] CSSCS does not "talk" to MCS and [other tactical command and control systems]; (b) Intel downlink from division ASAS produced copious information, but it was unscreened. There was no good way to identify significant information; (c) Use of brigade HQ as point to enter information from TF into CSSCS isn't realistic. There has been no increase to personnel authorized in brigade S4 section and there are 'tons' of data to be entered.

Several characteristics that detracted from benefits of technology were cited in the interviews:

- Some systems are not integrated (e.g., CSS not tied to MCS).

- Requirements for additional space and personnel (e.g., to store, operate, and maintain equipment, as well as to enter and process information).

- Requirements for additional generators and resulting increased vulnerability to detection ("generators = opposing forces [OPFOR] magnets").

- Loss of customary residual benefits (e.g., cannot "eavesdrop" on other units' nets on MSE).

Results of the content analysis for technology.

Corps (N=3)

2 Positive: ASAS (with Warrior) useful

1 Positive: MCS brought CP up to real world

1 Negative: MCS makes commander's job harder

1 Positive: MSE good

1 Negative: MSE does not permit eavesdropping

1 Negative: CP too bulky

Division (N=10)

7 Positive: Communications systems (MSE and SINCGARS) worked

5 Positive: ASAS (with Warrior) useful

4 Positive: MCS useful

1 Positive: Radar especially valuable

1 Positive: Unmanned Aerial Vehicle (UAV) strips ambiguity

1 Negative: MCS outdated

Results (continued) of the content analysis for technology.

Brigade (N=14)

6 Positive: MSE useful

4 Negative: MCS flawed
- 1 CSSCS not linked
- 1 Makes command and control harder
- 1 Requires skill to keep functional
- 1 Mass of data, more requests for (marginally relevant) information

3 Negative: Technology (overall) detracts
- 2 No options when systems fail
- 1 Generators are magnet for OPFOR

3 Negative: ASAS made command and control harder
- 2 Unscreened data
- 1 Intelligence officer lost access to terrain data base

2 Positive: Tactical Fire (TACFIRE) direction system valuable

2 Positive: Tactical local area network made information flow efficient

1 Positive: ASAS made command and control easier (battle captains screened data)

1 Positive: Remotely Monitored Battlefield Sensor System (REMBASS) and firefinder radar (Q36) were valuable

1 Positive: CSSCS requires too much manpower at brigade

1 Positive: Global Positioning System (GPS) useful

1 Positive: High technology weapons useful

1 Positive: Night vision devices useful

1 Positive: Benefited from telephone

1 Negative: Cannot eavesdrop with MSE

1 Negative: TACFIRE detection system blocked the Family of Scatterable Mines (FASCAM)

1 Negative: Range of FM radios inadequate

1 Negative: Commander needs to position assets (e.g. UAV)

Results (continued) of content analysis for technology.

Battalion (N=9)

4 Positive: MSE and SINCGARS aided command and control

3 Negative: MSE flaws hindered command and control

- 1 Inoperable
- 1 Special skill to keep functional
- 1 Not enough for the fire support officers, cannot eavesdrop

2 Negative: MCS flaws hindered command and control

- 1 CSSCS not linked
- 1 Inoperable

2 Positive: GPS aided

1 Positive: FM communication was good (DESERT STORM)

1 Negative: Range too great for FM

1 Negative: Low TACFIRE operational readiness hindered

1 Positive: Superior optics (Desert Storm)

1 Positive: Ability to "blast" spare parts aided

1 Positive: Benefited from Position Azimuth Determining System (PADS)

1 Positive: InterVehicular Information System (IVIS) contributed

Company (N=8)

5 Positive: Communication equipment (SINCGARS) helped

- 3 Made command and control easier (no other elaboration)
- 1 Eliminated jamming
- 1 Facilitated contact with supported units

4 Negative: Flaws in SINCGARS made command and control more difficult

- 1 Problems with resupply of batteries for manpack
- 1 Manpack hard to operate
- 1 Too many nets
- 1 Too long to get connected; not tied to engineer and CSS

2 Positive: Night vision goggles good

2 Positive: GPS aided

1 Negative: Need handset for use with helmet

1 Negative: Terrain (JRTC) inhibited contact with battalion

1 Negative: Simulation of TACFIRE and MSE not realistic (BCTP)

1 Negative: Health service needs force modification (armored personnel carrier [M113] cannot keep up with the Bradley Fighting Vehicle [BFV])

1 Positive: IVIS contributed

Individual Characteristics.

Overview.

The initial interview protocol called this factor "Leader Characteristics" and asked officers to consider four elements when determining the impact of characteristics on the difficulty of command and control: Their own training and experience; the training and experience of subordinate commanders; their own leader traits; and the leader traits of subordinate commanders. During the interviews officers frequently included quality of staff and occasionally included NCOs. The factor was renamed "individual characteristics" to accommodate the broadened scope.

The persistent comments across levels supported three conclusions:

- Skilled subordinate commanders facilitate command and control.
- A skilled, experienced staff eases command and control at division and brigade.
- Technically competent NCOs ease command and control.

Summary of comments.

Individual characteristics had a positive impact at all levels, but the magnitude of the impact declined at lower levels. Division and brigade officers tended to cite strong subordinate commanders and strong staffs, battalion commanders cited quality of subordinate commanders, and company commanders cited quality of NCOs. Few officers commented of their own training and experience or on their own leader traits.

Conclusion: Skilled subordinate commanders facilitate command and control. Quality of subordinate commanders was the most frequently cited element (24) affecting command and control. The 21 comments at levels above company were overwhelmingly positive. At those levels, 18 officers said that the quality of subordinate commanders made command and control easier.

Three officers above company level considered the low quality of their subordinates to have been a net detractor from their ability to command and control: A commander at division level commented that RC commanders above company lacked ability to synchronize operations; a brigade S3 said the one battalion commander and staff exhibited poor team work; and a battalion commander noted that high turnover among company commanders made his command and control more difficult. One brigade commander who considered subordinate quality overall to have been high also noted that he had to spend an inordinate amount of time with a battalion commander who had low tactical skill.

No company commander reported being aided by platoon leaders. In fact, three company commanders cited low skill of their platoon leaders as making command and control more difficult.

Conclusion: A skilled, experienced staff eases command and control at division and brigade. Quality of staff was one of the most frequently cited elements that affected command and control. At division and brigade levels the comments were strongly positive. Including comments from the organizational structure factor, six officers at division cited skill and experience of staff in the DMAIN as a factor that made command and control easier; two cited reservations about the depth of personnel staffing in the DMAIN. Two division officers from different divisions referred especially to the quality of the Chief of Staff as an aid in command and control.

The benefits from quality of staff were not realized at Division Rear. Two comments (from different divisions) concerned lack of skill and experience in the Division Rear ("... not unified. Tends to be staffed with people who can be spared.").

All comments about staff at brigade were positive.

Comments on battalion staff contributions were mixed. Seven battalion level officers made nine comments about the staff: Two were positive, primarily referring to technical proficiency; three were negative, referring mainly to turbulence; and two were mixed—for example, a TF commander described the staff's limited experience as a hindrance under organizational structure but their technical competence as an aid under individual characteristics. One company commander cited the inexperience of the battalion staff as an element that made his command and control more difficult.

Conclusion: Technically competent NCOs ease command and control. Three officers (division and brigade from separate divisions) cited the Battle Staff NCO Course specifically as an element that made command and control easier ("allowed officers to be battle captains"). Four officer comments (one negative and three positive) referred to the skills of NCOs at troop levels. The negative comment came from a DISCOM commander, who described the training of Logistics NCOs as inadequate to facilitate their role as replacements when Logistics Officers are participating in planning at higher headquarters. The positive comments were from company commanders, who cited the skill and independence of NCOs as elements that eased command and control. The company comments are in contrast to the lack of positive comments about platoon leaders, but they are consistent with the reported tendency of CSS commanders to manage by section.

Results of content analysis of individual characteristics.

Corps (N=3)

1 Positive: Commander set appropriate tone

1 Positive: High quality subordinate commanders

1 Positive: Commander emphasized face-to-face exchanges

1 Positive: Low experience in key staff not a problem

Results (continued) of content analysis of individual characteristics.

Division (N=10)

7 High quality staff
- 6 Positive
- 1 Negative: No sense in DREAR that work contributed

3 High quality subordinate commanders
- 2 Positive
- 1 Negative: RC battalions lack synchronization

2 Positive: Battle Staff NCO Course made easier

2 Positive: High quality chief of staff

1 Positive: Commander set light tone

1 Positive: Commander emphasized face to face contact and FM cross-talk

Brigade (N=14)

10 High quality subordinate commanders
- 8 Positive
- 1 Negative: 1 TF lacked teamwork
- 1 Mixed: Generally capable but one commander had low tactical expertise

3 Positive: High quality staff

1 Positive: Battle Staff NCO Course

2 Positive: Supported commanders emphasized logistics (comments from DISCOM commanders)

1 Negative: NCOs lacked operations training

Results (continued) for content analysis for individual characteristics.

Battalion (N=9)

8 Quality of subordinate commanders
- 7 Positive
- 1 Negative: Turnover among commanders

3 Quality of staff
- 1 Positive: Technically proficient
- 2 Negative: Turnover

Company (N=8)

7 Quality of subordinates
- 3 Positive: High skill, independent NCOs
- 4 Negative:
  - 3 Weak platoon leaders
  - 1 Individuals inexperienced with field techniques

1 Negative: Higher staff inexperienced

Unit Continuity.

Overview.

Guidance given to the officers for considering the relation between unit continuity (initially called history) and command and control initially requested them to consider the incorporation of existing structure and SOP and the rationale for task organization. During the early stages of the data collection, the scope was extended to represent continuity, which included shared experience among leaders and staff, and experience with similar missions. Comments followed three threads: habitual relations (discussed under organizational structure); experience of commander with subordinates and staff (distinguished from their individual experience as discussed under individual characteristics); and established SOP. The supported conclusions are:

- Commanders' experience with their subordinates and staff eases command and control.
- An established SOP eases command and control.

Summary of comments.

Unit continuity was a strongly positive factor for each level. It was rated "Much Easier" (made command and control much easier) more often than any other factor. The high regard for continuity reflected in the ratings suggests the importance of preserving as much of the existing structure as possible when designing units.

Conclusion: Commanders' experience with their subordinates and staff eases command and control. Of the 19 commanders who commented on past experience between the

commander and subordinates and staff, 15 cited that experience as a positive factor in their ability to command and control. The comments reflect a consistent, but not always successful, effort to avoid *ad hoc* structures.

Comments by division officers illustrate that effort. Four commanders cited experience between the commander and his staff as an influential and positive element. The only strongly negative comment, from an Assistant Division Commander for Support (ADC-S), was that the DREAR staff lacked experience working together. This element was at the base of most of this officer's largely negative comments about all the factors (in another context he called the structure a "kluge"). In contrast, an ADC for operations from a different division made the following statement to explain a strongly positive rating of the impact of unit continuity on span of effective command and control:

> "Team had been kept together--insisted that DTAC staffing be on a permanent basis rather than selecting those who could be spared for each exercise."

The other division comments endorsed the effort to avoid what a corps officer called "the bad habit of ad-hoccery."

Brigade officers were also strongly positive about the impact of stable relations between the commander and his staff and subordinates. Related comments at brigade level introduced experience with commanders of associated units and among staffs.

Battalion officers were also strongly positive about the overall influence of continuity, but the impact was muted in two cases by lack of time with commanders of attached units.

Company-level officers comments on experience with subordinate leaders were less frequent, but positive.

Commanders of CSS units were positive about the impact of the unit continuity factor on command and control (mean rating = 1.7). Their comments consistently cited the benefits of experience with commanders and staff of supported units.

Conclusion: An established SOP eases command and control. Sixteen officers rated the stability of their SOP as having an impact on the difficulty of their command and control. The comments were distributed almost equally among the echelons. The only negative rating came from an FSB commander whose battalion had made the transition to FSB from being a maintenance battalion and lacked a stable SOP. He nonetheless cited the brigade's command and control SOP as an element that made control easier when the FSB operated as part of the brigade task force.

An element related to SOP concerned the development of standard "plays." While one division officer cited such "plays" as a strong contributor to effective command and control, only one officer (brigade S3) from lower levels cited those "plays." It is possible, however, that other officers considered the "plays" to be part of the SOP.

Results of the content analysis for Unit Continuity.

Corps (N=3)

3 Positive: Established SOP

1 Positive: Military Police structure good for rear area operations center

1 Positive: Experienced with staff and subordinates

Division (N=10)

4 Commander and staff experienced together
- 3 Positive
- 1 Negative: DREAR lacked experience together

4 Positive: Established SOP

3 Positive: Experienced subordinate commanders

1 Positive: Developed standard plays

1 Positive: Incorporated existing structure

1 Negative: Lacked experience with equipment

Brigade (N=14)

9 Positive: Commander experienced with subordinates and staff
- 3 Commander with subordinate and attached units
- 3 Among units
- 2 Among staffs
- 1 Commander with staff

5 Positive: Established SOP

3 Positive: Maintained standard organization

2 Positive: Doctrine sound

2 Positive: Experienced subordinates and staff

2 Experience with higher command
- 1 Positive: Knew commander's intent
- 1 Negative: Lacked experience with corps

1 Positive: Rock drills facilitated coordination

1 Positive: Had set plays

Results (continued) of the content analysis for Unit Continuity.

Battalion (N=10)

4 Established SOP
- 3 Positive: Established within unit
- 1 Negative: Not stable

4 Commander experience with subordinates and staff
- 1 Positive: Habitual relation with supported units
- 3 Negative: Lacked time with attached/supported units

2 Experienced subordinates and staff
- 1 Positive: Senior company commanders
- 1 Negative: Staff turbulence

1 Positive: Established higher SOP

1 Positive: Experienced with structure

1 Positive: Developed set plays

Company (N=7)

3 Positive: Established SOP

3 Positive: Experienced subordinates

2 Positive: Experience with leaders

1 Positive: Established structure conducive to control (FA battery)

External Organizations.

Overview.

The scope of external organizations for the interviews was Army organizations outside normal channels, government organizations (including civilian officials), and non-government organizations. This factor was included primarily for OOTW. Most officers interviewed for warfighting operations rated the factor as having a small negative impact. The relatively few comments did support two conclusions related to external organizations:

- With quality liaison, military organizations outside normal channels add valuable capability to coordinating Army unit.

- Authorizing and training of subordinates in coordinating with civilians would increase the span of effective command and control.

Summary of comments.

Only 11 officers contributed comments related to the impact of external organizations. Those comments highlight the relation between external organizations and other factors. The impact of liaison officers is related to the impact of quality staff (individual characteristics) and habitual task organization (organizational structure). The effect of coordination with civilians is similar to effects of complexity of environment.

Conclusion: With quality liaison, military organizations outside normal channels add valuable capability to coordinating Army unit. Four officers (one at division, two at brigade, and one at battalion) cited the obvious benefits of air support, air defense, and information from special operations forces. Three officers said they received the benefits because of experienced and capable liaison officers. One officer said that weak liaison with air defense not only caused the loss of benefit from those assets, but also complicated land management.

Conclusion: Authorizing and training subordinates in coordinating with civilians would increase the span of effective command and control. Four brigade officers reported coordination with civilians as an element that made command and control harder. In one case (Desert Storm), the difficulty was related to the complexity of environment: civilian oil fields complicated land management and movement. The other examples were demands on a commander's time and attention because of the need to deal with civil officials, host nation support, refugees, national police, or U.S. State Department in BCTP or JRTC scenarios. One of the brigade commanders described the effect: Commanders cannot delegate coordination with civilians since subordinates are not trained to deal with civilians. Incorporation of civilians into some CTC scenarios provides one avenue for training subordinates; such training could also be implemented during training exercises at home station.

Results of the content analysis for external organizations.

Corps (N=2)

1 Negative: Department of the Army (DA) does not resource CP adequately

1 Negative: Higher HQ ineffective (represented by ad hoc group)

Division (N=4)

1 Negative: Higher HQ ineffective (through G3, may be BCTP artifact)

1 Negative: Sense that DREAR is island to itself

1 Negative: Effective liaison with, e.g., Air and Naval Gunfire Liaison Company (ANGLICO) and SOCCE

1 Negative: Project managers (new equipment) distracted

Results (continued) of the content analysis of external organizations.

Brigade (N=6)

4 Negative: Coordination with civilians added difficulty
- 1 Subordinates not trained to deal with civilians
- 1 Host nation support, refugees
- 1 Police, Special Forces, State Department
- 1 Oil fields posed constraints

2 Effective liaison
- 1 Positive: SOCCE LNO enabled additional information
- 1 Negative: Lacked authorized LNO

1 Negative: Lacked down-link for national level intel

1 Negative: Corps assets operated independently (complicated land management)

1 Negative: Hard to work with different division HQ

Battalion (N=4)

1	Negative:	(If actual) Lack language to coordinate host nation support for transportation
1	Positive:	Liaison officer added information (ANGLICO)
1	Negative:	Coordination with adjacent units difficult

Recommendations for Designing Units for Warfighting Operations

The interviews related to warfighting operations resulted in two sets of recommendations:

- Implications for the structure and training of new organizations drawn from the study's conclusions about the factors.
- Direct recommendations for changes to Army organizations made by the officers interviewed.

Implications drawn from conclusions about the factors.

The 44 officers who were interviewed on warfighting operations provided insightful and candid comments that form the framework for a database on command and control. Still, the current sample is too small for definitive conclusions. The comments do provide clues to consider for organizing and training units.

More so than for other types of units, the structure of CSS units must consider the number of units supported in addition to the number of units over which there is command and control. The ratings of the impact of all factors and comments related to organizational structure suggest that the commanders of CSS units in this sample were approaching their maximum limits of span of effective command and control. They were able to handle their current spans of command and control in part through the personal relationships they had established with the commanders and staff they habitually supported in training. If new organizations incorporate modular structures that reduce habitual training relationships between CSS and supported units, special attention should be given to reducing or mitigating the spans of command and control or spans of support for CSS units. One way to mitigate the spans of support is to increase opportunities to exercise field trains in home station and CTC environments.

Technology insertion may increase spans of command and control but at a cost. Technological advances related to command, control, communications, computers, intelligence, and information (C^4I^2) equipment generally facilitated larger spans of effective command and control by increasing contact between commanders in this sample and their subordinates. Introducing that equipment, however, increased demands on the staff to operate and maintain the equipment. It may be possible to imbed training for staff to operate and maintain C^4I^2 equipment. It is also important to give battalions and brigades the flexibility to augment their staffs to operate and maintain the equipment.

Coordination between units requires attention to LNO personnel and facilities. Units in this sample typically coordinated well with special operations forces and other services. The quality of that coordination depended largely on the availability of experienced liaison officers (LNOs). Interview comments reinforce the wisdom of adding enough LNOs and equipment to current staffs to enable the commander and staff to cope with the liaison requirement.

Recommendations made directly by officers interviewed.

While the major focus in the interviews related to warfighting operations was on the factors, several officers made direct comments on possible changes to the structure of Army units. Most of the comments were spontaneous recommendations sparked by discussing a factor (usually organizational structure). In two cases, (MI battalion and DISCOM) interviewers asked the officers to respond to a suggestion by another officer. The comments are summarized by subject in Table 13. Comments representing disagreements are also summarized. The full text of the comments can be found in Appendix E, Page E-11 (Overall, General Comments for Warfighting Operations).

Table 13

Summary of Direct Recommendations for the Design of Army Organizations

Subject	Recommendation	Position
MI Battalion	Pull up to corps.	Corps CDR
	Agree: Redundant in division.	Corps CoS
	Disagree: Need battalion CDR's maturity (vice MI company commander).	Div CDR
DISCOM	Replace with ADC-S and limited staff.	Corps CDR
	Disagree: Few ADC-S have background.	Div CDR
Air Defense	Strip assets from division; distribute Stingers.	Corps CDR
Staff	Reduce from corps down.	Corps CDR
MSB	Reduce size, keep some functions.	Corps CoS
Aviation Brigade	Reduce structure but add mechanics.	Corps CoS
Echelons Above Corps	Compress levels above corps (e.g., CONUSA, Army Materiel Command, and U.S. Army Europe).	Corps CoS
Scouts	Put scouts back into brigade.	Corps CDR
Combined arms battalion	Start restructure with combined arms battalions.	Div CDR
Platoon	Establish 3-tank platoons (without reducing the number of tanks in the battalion).	Div CDR
Brigade	Establish separate brigades.	Brigade S3
	Disagree: Need division when brigade requires fire support.	Div CDR

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Appendix A

Read-Ahead for Contingency Operations

Overview of Interview

Purpose

We are building a database of examples in order to appraise issues related to span of command and control. The work is being conducted by the Army Research Institute under the sponsorship of the Combined Arms Command. The examples will be applied in three ways:

- Serve as a basis for an extended research program on command and control.
- Provide guidance to force developers.
- Provide guidance to commanders on task organization.

The database is being built from information derived from interviews with commanders with recent experience in operational environments. We would like to talk with you about your role during *Andrew*[1]. Your experience in this operation is significant because it illustrates *the complexity of missions in operations other than war.*

We are especially interested in how you organized your task force (units/source, special skills, and training); your staff (special training and augmentees); organizations you coordinated with; and your opinion about how well equipped you were to command and control in the *Andrew* environment. In keeping with the purposes of the project, we want to concentrate on the relationship between your organizational structure and the number of subordinates you were able to command and control. A fundamental premise of this work is that the number of subordinates a commander can command and control depends on a number of elements that compete for the commander's attention. We have classified these elements into the factors shown on the attached table[2].

Procedure

We will ask you to diagram your organizational structure during the operation. We would then like you to give an overview of your role in *Andrew* and identify key events during the operation. Next, we will select requirements placed on you by those key events, especially if the events caused you to change the way you dealt with people in your structure. We will then ask you to describe the factors that affected the difficulty of command and

---

[1] Sections in italics were modified to suit conditions for each commander.

[2] The list of factors was the one shown in Table 1 of the main report.

control. Finally, we would like you to describe lessons learned from your experience with special attention to how to organize units for similar operations. As you think about decisions you made, you may be reminded of other key people who might have relevant insights. Please tell us who those people are.

Example

We have provided a summary of an interview related to one requirement. The purpose of the sample is to give you an idea of the type of information we anticipate. Your examples may not have been affected by all the factors, and other factors may have influenced you. Please do not feel confined to limit your comments to these factors.

Example: Battalion Task Force in Debarkation (Port Assistance)

Context:
First Infantry Division (Forward) [1 ID(F)] assisted VII Corps deployment into Saudi Arabia for Operation Desert Shield/Storm. ID(F) was given mission order "to do anything to quickly build the corps's combat power in the desert." Tasks included:

- Off-load vehicles from ships.
- Support soldiers in staging areas.
- Coordinate heavy lift for unit vehicles and non-organic transportation for soldiers.
- Other tasks as assigned.

First ID(F) provided headquarters for command and control of Port Assistance Teams at two ports and operations at five staging areas. CG established a chain of command through a brigade commander to two battalion commanders, each responsible for a port.

In a previous interview, the 1 ID(F) commander had identified two critical events: a surge in the number of units deploying into Saudi Arabia and the initiation of hostilities, i.e., SCUD attacks and the threat of other types of attack. One requirement of the surge was to intensify the operations at the ports. The increased pace was especially pronounced at the port that included four staging areas. The commander of the Battalion Task Force responsible for that port was the interviewee.

Task Characteristics:
Essential tasks:

1. Off-load vehicles and equipment of deploying units.
2. Stage vehicles, equipment, and personnel.
3. Coordinate logistics support to the tactical assembly area.
4. Facilitate the efficient modification and modernization of designated equipment.
5. Provide local security for staging areas.

Required coordination:
Camp companies operated independently of each other; off-load and holding area companies had to coordinate with each other.

Specialized knowledge:
Task Force personnel had limited experience or training on the tasks, but did have required operator skills for vehicles. Expertise on off-loading procedures was provided from Battalion Transportation Battalions.

Organizational Structure:
(See Figure A-1.)

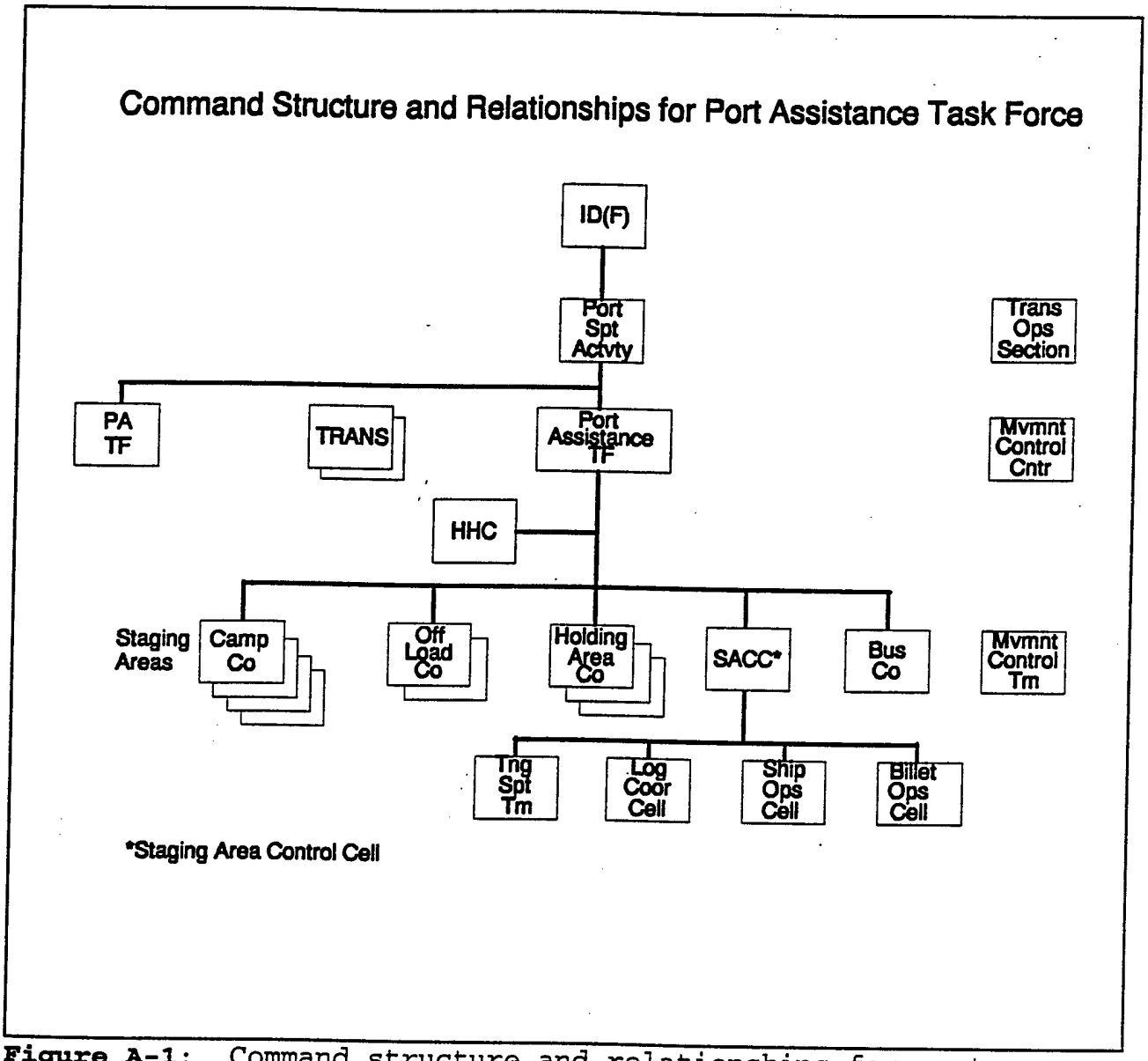

Figure A-1: Command structure and relationships for port assistance task force.

The Task Force faced an immense span of control problem--at one time there were over 32,000 soldiers from 205 battalions and separate companies under the Task Force's control. Two characteristics of the structure helped manage the control:

- Task Force adapted its organization to meet the mission requirements:
  - Task Force dedicated an organic company to each staging area.

- Task Force formed a Staging Area Control Cell to coordinate training support, logistics coordination, ship operations, and billet operations. The Battalion XO was given responsibility for the cell.

• ID(F) Headquarters transferred responsibility for managing transportation to a different battalion commander as a special project.

Complexity of Environment:

METT-T:

Mission-- To off-load vehicles and equipment from ships; stage vehicles and equipment; and provide logistical support to facilitate the onward movement of VII Corps to the tactical assembly area (TAA).

Enemy-- After commencement of Desert Storm, there were periodic SCUD attacks; ground and tactical air attacks were anticipated. Chemical and biological attacks were possible.

Troops-- Task Force of 725--reduced manning level augmented by 200 soldiers drawn first from 3rd Armor Division and later from 2nd Armored Division (Forward). Companies were task organized to assure operator and maintenance skills for vehicles.

Terrain-- Two camps were remote from the task force headquarters (25 KM and 30 KM).

Time-- The corps objective was to move flow units to the TAA within 3 days of their arrival. This objective required that operations be conducted on a 24-hour basis.

Ambiguities:

There was insufficient, inaccurate, and untimely information on airflow and seaflow. The average discrepancy was an under-prediction of five flights and 620 personnel each day; the most extreme case was the day 17 flights arrived unexpectedly with 2247 personnel.

Split loading was widespread--most battalions had equipment on more than two ships (one maintenance battalion had equipment on 25 ships). This delayed these units from clearing the port and contributed to the much higher than anticipated density.

Originally told to provide food and support for 17,000 soldiers; actually supported 39,000 at once.

Later in operation, increased force protection concerns included uncertainty about enemy actions, especially possibility of chemical attack.

Constraints:
Lacked organic transportation.

High competition for shelter and transportation assets.

History:
Working with an established TO&E command structure enhanced effectiveness. The Task Force commander and staff provided a recognizable chain of command that enabled the Task Force to be a point of contact with the transient units. Access to an organization with structure and SOP was particularly important for CS and CSS company-size units which were fragmented or whose parent brigades were already in the TAA.

Technology:
Mission was complicated by insufficient organic communications assets (equipment and operators). Lack of communications equipment forced leadership to devote an inordinate amount of time to gathering and transmitting information.

Lacked means to track ground transportation once they left port.

Leader Characteristics:
The Task Force commander was especially adept at problem solving tasks of the magnitude encountered (CG's assessment).

Original plans called for platoon-size cells to coordinate flow units who would operate camps and vehicle holding areas. The chain of command soon concluded that the tasks required the command experience of a company commander and the robustness of a company to maintain the 24-hour operations.

Retained integrity of chain of command from task force to squad. Though company commanders had no direct experience with essential tasks, they had exercised that chain of command during normal operations and a recent CMTC rotation. The decision making process proved effective.

External Organizations:
Task Force worked in close coordination with a Transportation Headquarters. The Headquarters supervised off-loading of ships; provided LOGMARTS operators to monitor discharged equipment; and provided or coordinated MREs, water, fuel, and maintenance support to prepare deploying units for convoy movement to the TAA. The close working relationships that developed between the Task Force and the transportation battalions from the Transportation Headquarters had a positive impact on productivity.

Appendix B

Comments from Command and Control Database for Contingency Operations

The database included in this appendix consists of transcriptions of the comments made by eleven senior officers during relatively free-ranging interviews related to the command and control of contingency operations. The discussions with the senior commanders and staff of the operations were oriented largely toward lessons learned regarding organizing a Joint Task Force (JTF).

Project staff grouped comments made by the offices into one of nine categories based on an analysis of the contents of the comments. Two categories were used for comments that did not specifically relate to any of the seven factors proposed as impacting command and control. These comments were placed into one of two "overall" categories: Overall-Specific or Overall-General. Comments placed into the Overall-Specific category were judged by the project staff to be related specifically to the officers' judgments of the workload experienced during the operation and to the success of the operation. Comments placed into the Overall-General category were judged to be generally related to command and control functions in a JTF, but not to the specific operation under consideration. The other seven categories were used, respectively, for comments that were related to each of the seven factors proposed as impacting the span of effective command and control: Task Characteristics, Organizational Structure, Complexity of the Environment, Technology, Individual Characteristics, Unit Continuity, and External Environment.

Major sections of this appendix correspond to the nine categories of comments, in the order of their description as just provided. Comments presented in all the sections are identified by *Echelon*, *Unit*, *Mission*, *Position*, and *Rank* of the officer. Comments presented in the Overall-Specific category are also related to two index numbers whenever they are available. The first index number is the officer's ratings of the *Workload* he experienced during the mission (using a 10-point scale, where 1 means Low Workload, and 10 means High Workload). The second index number is the officer's rating of the *Success* of the mission (using a 5-point scale, where 1 means Unsuccessful and 5 means Completely Successful). Comments presented in the sections for each of the seven factors are accompanied by the rating the officer assigned to the *Impact* of the identified specific factor on the difficulty of command and control (using the scale described on Page 14 of the main report).

Comments from Command and Control Database for Contingency Operations

-- Overall, Specific --

Command and Control - Overall.
Specific Remarks: Mission, Workload, and Success

Echelon	Unit	Mission	Position	Rank

Mission Remark
Workload Index/Remark
Success Index/Remark

JTF LA Riots JTF J3 BG

Support local authorities in security operations in response to LA riots

10.0 initially 10 then 7

5.0 No one was killed and criminal activity stopped (anecdote of a person walking to local grocery store for the first time in years).

JTF SAND FLEA JTF CDR MG

See remarks for JTF DCDR JUST CAUSE.

0.0 Commander not willing to assign numbers, however order of difficulty was:

SAND FLEA (Most difficult)
PROMOTE LIBERTY
JUST CAUSE (Least difficult)

Difficulty was primarily a function of clarity of mission.

0.0

JTF JUST CAUSE JTF DCDR MG

Interviewee was involved with operations in Panama as Commander of Joint Task Force-Panama (JTF-P) during Operation SAND FLEA (events leading up to force projection), Deputy Commander of Joint Task Force-South (JTF-S) during Operation JUST CAUSE, and Commander during Operation PROMOTE LIBERTY (stabilization and nation building).

0.0 Commander not willing to assign numbers, however order of difficulty was:

SAND FLEA (Most difficult)
PROMOTE LIBERTY
JUST CAUSE (Least difficult)

Difficulty was primarily a function of clarity of mission.

0.0

JTF PROMOTE LIBERTY JTF CDR MG

See Mission Remarks for JTF DCDR JUST CAUSE.

0.0 Commander not willing to assign numbers, however order of difficulty was:

SAND FLEA (Most difficult)
PROMOTE LIBERTY
JUST CAUSE (Least difficult)

Difficulty was primarily a function of clarity of mission.

0.0

JTF PROMOTE LIBERTY JTF J3 LTG

See remarks for JTF J3 JUST CAUSE.

0.0

0.0

Command and Control - Overall.
Specific Remarks: Mission, Workload, and Success

Echelon	Unit	Mission	Position	Rank

Mission Remark
Workload Index/Remark
Success Index/Remark

JTF		JUST CAUSE	JTF J3	LTG

The commander who was the source of this interview was involved in all phases of operations in Panama associated with Operation JUST CAUSE. He was J3 for SOUTHCOM for about five months prior to JUST CAUSE, during JUST CAUSE, and for the start of PROMOTE LIBERTY. Later he was Commander of JTF-P.

0.0
0.0

JTF	JTF	PROVIDE RELIEF	JTF CDR	LTG

Hurricane Andrew struck South Florida at 0500 24 August 1992. At 1300 a three-county area was declared a Federal Disaster Area. On 28 August, Joint Task Force--Andrew was formed with the immediate mission of providing humanitarian support by establishing field feeding sites, storage/distribution warehousing, cargo transfer operations, local/line haul transportation operations, and other logistical support to the local population. The Joint Task Force Headquarters was built upon the commander and staff of 2d Army, commanded by LTG Ebbessen, who became JTF Commander. The principal augmentees were the J3, who came from the 4th Infantry Division, and the Chief of Staff, who came from 1st Army. The task force included Army, Air Force, Navy, and USMC. On 7 September, the operation became a Combined Operation with the arrival of the first of 400 Canadians. The peak support was reached on 11 September with a personnel strength of 23,800 (plus 6,000 Florida National Guard not under JTF command). The DOD role ended on 15 October 1992.

8.0 10 early, 7 or 8 once organization was in place.
5.0 Set doctrine for JTF.

JTF	JTF	PROVIDE RELIEF	JTF DCDR	MG

See Mission Remarks for JTF CDR

7.0 Once organization was in place.
5.0

JTF	JTF	PROVIDE RELIEF	JTF CS	MG

See Mission Remarks for JTF CDR

7.5 Never felt overtasked.
4.5 DOD came out with positive remarks.

JTF	JTF	PROVIDE RELIEF	JTF J3	BG

See Mission Remarks for JTF CDR

0.0 High. Tried to get 4 hours' sleep per 24. By tenth day, accumulation of tension caused severe muscle spasms in neck. Began indoor PT regimen.
0.0

Command and Control - Overall.
Specific Remarks: Mission, Workload, and Success

Echelon	Unit	Mission	Position	Rank
Mission Remark				
Workload Index/Remark				
Success Index/Remark				
DIV	JTF	RESTORE HOPE	Div CDR	MG

BACKGROUND: After the government collapsed in January 1991, Somalia was characterized by clan warfare and a breakdown in government functions. As part of the warfare, clans obstructed distribution of relief supplies and extorted money from relief agencies. United Nations involvement began in April 1992 and was increased in August of that year. However, efforts were ineffective due to continued looting, extortion, and factional warfare.

On 3 December 1992, the Joint Chief of Staff issued a warning order to execute Operation RESTORE HOPE in support of UN humanitarian efforts. A Coalition Joint Task Force (CJTF) was formed under the command of CG, 1st Marine Expeditionary Force; CG, 10th Mountain Division (Light Infantry) was designated COMARFOR. Six days later, Marine forces conducted an amphibious assault and Army forces began to deploy. With the absence of a legitimate government, military forces were involved in all aspects of the restoration of order, including limited combat operations, political negotiations, and reconstruction of the infrastructure.

0.0 Commander is not willing to rate difficulty on a numerical scale. Operation RESTORE HOPE was not as difficult as DESERT STORM because the threat was not as intense and the coalition was more supportive. It was, however, on a comparable scale. RESTORE HOPE was more difficult than PROVIDE RELIEF (Hurricane Andrew) because of the large number of players, language differences, more intense threat, and the limited number of LNOs.

0.0 Successful: Broke the cycle of starvation.

Command and Control - Overall.
Specific Remarks: Mission, Workload, and Success

Echelon	Unit	Mission	Position	Rank

Mission Remark
Workload Index/Remark
Success Index/Remark

BDE 7th Div JUST CAUSE Brigade CDR BG

Brigade Commander had been in Panama with his brigade during NIMROD DANCER and had returned to CONUS. The brigade did not deploy with the 7th Division at the start of JUST CAUSE, but deployed about one week later, and was attached to 82nd (Airborne) Division. When the 82nd Airborne Division left Panama (at the beginning of the PROMOTE LIBERTY phase), the brigade returned to the control of the 7th Division.

7.0 Difficulty

Overall--7 on a 10-point scale. Cannot separate JUST CAUSE from PROMOTE LIBERTY, though operation tended to become more difficult as emphasis shifted from providing security to nation building. NIMROD DANCER was a 9.5.

0.0

BDE 7th Div PROMOTE LIBERTY Brigade CDR BG

See remarks for JUST CAUSE.

7.0 Difficulty

Overall--7 on a 10-point scale. Cannot separate JUST CAUSE from PROMOTE LIBERTY, though operation tended to become more difficult as emphasis shifted from providing security to nation building. NIMROD DANCER was a 9.5.

0.0

DIV 7th Div JUST CAUSE Div CDR LTG

The Panama Campaign included four phases: TF HAWK (aviation exercises), NIMROD DANCER (assertion of treaty rights), JUST CAUSE (decisive force) and PROMOTE LIBERTY (stabilization and nation building). While the 7th Division was involved in all phases, the interview with the Division Commander focused on Operations JUST CAUSE, with particular emphasis on deployment, and PROMOTE LIBERTY. The time frame for the two operations was December 89 to February 90.

6.0 Not especially difficult: 6 on a 10-point scale. Tasks were part of METL, responsibilities and relationships were clear, and subordinate commanders were very capable. Major contributors to difficulty were METT-T, especially distance of terrain and inaccurate information.

Command and control were not a problem; could make mistakes and recover. That sort of flexibility will be lost as the intensity of conflict increases.

0.0

DIV 7th Div PROMOTE LIBERTY Div CDR LTG

See remarks for JUST CAUSE.

7.0 More difficult: 7 on a 10 point scale. Actual combat is the easiest part of a force projection operation; operations like PROMOTE LIBERTY provide the big challenge.

0.0

Comments from Command and Control Database for Contingency Operations

-- Overall, General --

Command and Control - Overall.

General Comments.

Echelon	Unit	Mission	Position	Rank
JTF		LA Riots	JTF J3	BG

JTF Staff Impact H2 Staff was ad hoc from Army (J3, J4, and J6) and Marine (J1, J2, J5).

Echelon	Unit	Mission	Position	Rank
JTF		SAND FLEA	JTF CDR	MG

See Comment for JTF DCDR JUST CAUSE.

Echelon	Unit	Mission	Position	Rank
JTF		JUST CAUSE	JTF DCDR	MG

Need specialized CPX for MOUT. Staff needs to work through problems such as dealing with sewer system, communication centers, and refugees. Original contingency plan called for destroying the telephone system by blowing it up, but a member of the staff recommended disabling the system by taking out a circuit card. This enabled US forces to restore the system after the initial phases of JUST CAUSE. Telephone system was essential for remainder of operations in Panama.

Echelon	Unit	Mission	Position	Rank
JTF		PROMOTE LIBERTY	JTF CDR	MG
JTF		PROMOTE LIBERTY	JTF J3	LTG

See Comment for JTF J3 in JUST CAUSE.

Echelon	Unit	Mission	Position	Rank
JTF		JUST CAUSE	JTF J3	LTG

1. Since DoD cannot assume lead time sufficient to meet all planning and preparation requirements for future joint operations, there is a need to identify requirements for standing JTFs. In Commander's concept, DoD includes a limited number of organizations, but at least one from each service, that are suitable cores for standing JTF. The particular headquarters depends on the type of operation; for example forced entry, permissive entry with sustainment, non-combatant evacuation operations (maritime or air), or amphibious operations.

2. An augmentation package should be identified for each type of operation, and the operations should be trained in professional training: Tasks/conditions/standards, OPFOR, OC package, and AAR (assuming joint openness comparable to Army).

3. MSG concept needs to be standardized for operations short of war. Training should be joint and inter-agency.

Command and Control - Retrail.

General Comments.

Echelon	Unit	Mission	Position	Rank
JTF	JTF	PROVIDE RELIEF	JTF CDR	LTG

1. US Government did not federalize National Guard. That was the right decision, since it preserved their eligibility for law enforcement and security activities.

2. Good decision to base the JTF on current DOD system i.e., use of CONUSA provides a knowledge base for disaster relief. Do not need special training beyond what is currently done within CONUSA.

3. Military equipment should not necessarily be first choice. Early contracting for equipment aids economic recovery and makes disengagement easier.

4. Need to establish an organization to sustain the force as well as the community. In this case, responsibility was handled by COSCOM Commander.

5. Priorities for augmentation:
   (a) Proper communications
   (b) Seabee units: professional trade organization
   (c) Incorporate IG, Army Audit Agency, GAO, lawyers

6. Recovery operations have three stages:
   (a) Response
   (b) Recovery, which includes more than providing basic essential for life; includes clean-up.
   (c) Reconstitution (long range)

7. Early determination of end-states for disengagement by DOD are needed. From those come identification of measures to achieve each end-state and designation of criteria for the end-state.

8. It was important to keep all actions in the open.

9. Volunteerism is a fact of American life; commander should plan to use it.

JTF	JTF	PROVIDE RELIEF	JTF DCDR	MG

1. Priorities for augmentation:
   (a) Chief of staff (such as MG Griffitts) who can organize the staff quickly
   (b) Experienced, mature J3 (such as BG House)

JTF	JTF	PROVIDE RELIEF	JTF CS	MG

1. Training for warfighting transferred to the humanitarian environment. Units do not require specialized training for humanitarian missions.

2. Because of political sensitivity, CoS needs to be senior with understanding of joint operations and how civilians are involved.

Command and Control - Overall.

General Comments.

Echelon	Unit	Mission	Position	Rank

3. Priorities for augmentation:

(a) Collocate Public Affairs Officer with Operations node.

4. In considering maximum span of effective command and control, number of units is less relevant than the skills of people. CONUSA has 13 Readiness Groups. Not excessive:

(a) have clear policies and methodologies;

(b) technology, especially electronic mail, makes control more efficient;

(c) commanders have high skills (in larger Army, would be Brigade Commanders).

JTF	JTF	PROVIDE RELIEF	JTF J3	BG

Command and Control - Overall.

General Comments.

Echelon	Unit	Mission	Position	Rank
BDE	7th Div	JUST CAUSE	Brigade CDR	BG

Distribution of Time

0500-0630

- Personal hygiene
- Debrief night shift TOC staff (informal)
- Meet with S3 and XO

0630-1700

- Monitor each battalion
- Monitor two companies per battalion
- Check on sample of key installations--traffic control points, squad/platoon patrols, company CPs
- Check CA project
- Monitor PSYOPS operation
- Respond to calls

1700-1800

- Semi-formal lay-down by all staff (cross-level)

1800-1900

- Attend Division lay-down
- Meet with Division Commander and selected division staff

1900-2400

- Up-date XO and selected staff
- Monitor night operations
- Try to get five hours of sleep

BDE	7th Div	PROMOTE LIBERTY	Brigade CDR	BG

See Comment for Brigade Commander in JUST CAUSE.

DIV	7th Div	JUST CAUSE	Div CDR	LTG

1. During JUST CAUSE, wanted more intelligence to get a better feel for the enemy situation. Now (at Corps) overwhelmed with intelligence; need system to help sort through the information (e.g. ASAS). Need to retain flexibility in intelligence capabilities. In operations like JUST CAUSE, commanders need people who know the enemy--eyes on the ground intelligence (HUMINT). This is an area where the Army is weak and needs to emphasize.

2. Current Command and Control Challenges: If we have to deploy Corps to project power, command and control of divisions will be relatively easy. The challenge will be the 70% of the force that comes from RC units. Since these units are scattered across the country, it is difficult to be with them for training. In addition, the composition of the Corps is subject to change. As a result, relationships with these units are almost impersonal. Command requires a personal relationship.

Command and Control - Overall.

General Comments.

Echelon	Unit	Mission	Position	Rank

3. Staff Reductions: Maneuver battalions and brigades are very austere, and division staffs meet themselves coming and going. Cannot think of any reduction that would not degrade ability to fight 24 hours a day.

DIV	7th Div	PROMOTE LIBERTY	Div CDR	LTG

Need training for peacekeeping operations; JRTC is developing scenarios for such operations.

Comments from Command and Control Database for Contingency Operations

-- Task Characteristics --

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor Rationale		Impact		
JTF		LA Riots	JTF J3	BG
Task Characteristics		H2		

Initially under pressure from law enforcement agencies to put Army personnel on each patrol and fire vehicle. Army insisted on unit structure (minimizing individual law enforcement tasks).

JTF	SAND FLEA	JTF CDR	MG
Task Characteristics	N		

SAND FLEA:

1. Enforce treaty rights.

"Negotiator" concerning custody of M. Noriega. (This was an appointment made by the NCA, USA.)

JTF	JUST CAUSE	JTF DCDR	MG
Task Characteristics	N		

JUST CAUSE:

1. Secure canal and vital facilities.
2. Neutralize Panama Defense Forces (PDF).
3. Establish law and order.

JTF	JUST CAUSE	JTF DCDR	MG
Task Characteristics	E		

Specialized knowledge

Knowledge of culture and facility in language was vital. Since he met regularly with PDF General Staff prior to JUST CAUSE, commander was able to make accurate assessment of willingness of PDF to fight.

About three months prior to JUST CAUSE, focussed subordinate unit training on MOUT with emphasis on counter-terrorist exercises with civilians.

JTF	PROMOTE LIBERTY	JTF CDR	MG
Task Characteristics	N		

PROMOTE LIBERTY:

1. Maintain security.
2. Develop PDF into national police force.

JTF	JUST CAUSE	JTF J3	LTG
Task Characteristics	N		

JUST CAUSE

1. Deploy forces.
2. Secure canal and vital facilities.
3. Neutralize Panama Defense Forces (PDF).
4. Establish law and order.

JTF	JUST CAUSE	JTF J3	LTG
Task Characteristics	E		

Specialized knowledge

Deployment from CONUS was preceded by about five months of intensive clandestine training all over the world. This training made the tasks for subordinate units more nearly routine.

Key contributor to success of JUST CAUSE was that each element in the chain had a clear picture of its scope of responsibility and stayed in its lane. This reduced the need for layers of close supervision. Commander contrasted JUST CAUSE with VietNam "stack of helicopters" (General, Colonel, and S3

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				

hovering over a company commander). Elements who stayed in their lane included National Security Council, Joint Staff, Unified Commander, JTF and Division Commanders, who each had a defined area of responsibility with clear rules of engagement.

JTF		PROMOTE LIBERTY	JTF J3	LTG
Task Characteristics			N	

1. Establish government.
2. Maintain security.
3. Train police force.

JTF	JTF	PROVIDE RELIEF	JTF CDR	LTG
Task Characteristics			N	

Nothing about the mission made span of command and control more difficult at the commander's level.

JTF	JTF	PROVIDE RELIEF	JTF DCDR	MG
Task Characteristics			N	
JTF	JTF	PROVIDE RELIEF	JTF CS	MG
Task Characteristics			H1	

Initially had to determine roles for each component and for each unit. Once objectives were defined, units were able to execute the missions. Mission did "creep."

JTF	JTF	PROVIDE RELIEF	JTF J3	BG
Task Characteristics			H	

J3 initially lacked familiarity with relationships between military and civilian agencies. Recommends that officers who will augment an Army staff for disaster relief be predesignated (dual hatted). Army or FEMA should then conduct annual training, using the BCTP model, on natural disasters.

Command and Control - Factors:

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
DIV	7th Div	JUST CAUSE	Div CDR	LTG
			N	

Task Characteristics
1. Deploy forces.
2. Secure canal and vital facilities.
3. Neutralize Panama Defense Forces (PDF).
4. Establish law and order.

DIV	7th Div	JUST CAUSE	Div CDR	LTG
			E	

Task Characteristics
Rapid deployment was the Division's normal business and was part of its METL; the specifics for JUST CAUSE (except insertion into Panama City) had been rehearsed almost daily.

DIV	7th Div	PROMOTE LIBERTY	Div CDR	LTG

Task Characteristics
1. Establish government.
2. Maintain security.
3. Train police force.

DIV	7th Div	PROMOTE LIBERTY	Div CDR	LTG
			H	

Task Characteristics
As Panamanian military and police forces were disarmed, brigades and battalions assumed non-traditional roles. In some cases platoon leaders acted as mayors and police chiefs.

Despite the probability that units will be assigned non-traditional missions, the Division Commander does not think it would be prudent to change the METL to accommodate operations other than war. The prime focus should be on warfighting missions with rules of engagement (ROE) and civilian\military matters addressed in professional development. Success with ROE hinges on disciplined soldiers rather than on specific items of information.

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
BDE		JUST CAUSE	Brigade CDR	BG
			N	

Task Characteristics

Tasks

1. Disarm Panama Defense Force (PDF), Dignity Battalions, and police.
2. Provide security for Panamanian and U.S. key installations.
3. Apprehend designated members of the Noriega government.
4. Train new police force.

BDE	JUST CAUSE	Brigade CDR	BG
		E	

Task Characteristics

Specialized knowledge

Tasks for subordinate infantry units were very similar to METL. However conditions were much more demanding, because of the requirement for restraint instead of "unrestricted application of fire power to achieve objective." In response to experience during NIMROD DANCER, commander had established situational training exercises (STX) on rules of engagement (ROE).

Military Police (MP) were "worth their weight in gold," largely because of their familiarity with ROE for confrontation situations (as well as mobility and low intensity fire power). Would have traded two infantry companies for one more MP company.

BDE	JUST CAUSE	Brigade CDR	BG
		H	

Task Characteristics

Military Operations Over Urbanized Terrain (MOUT) were much more difficult than anticipated. The operation was physically harder because of the intense heat coupled with the need for protective equipment (flak jackets). (Now do much more training in flak jackets.) But the biggest factor was the psychological strain required to clear buildings when inhabitants are a mix of friendly and enemy. MOUT required more force than commander had anticipated.

Similarity

Though the brigade was responsible for up to 50 key installations, complexity of command and control was affected more by the variety of tasks, such as patrols, roadblocks, and follow-up to intelligence reports.

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
BN		SINAI	TF CDR	MG
			N	

Task Characteristics
Essential tasks:
1. Monitor activity in restricted areas.
2. Notify Egyptian or Israeli units when they violated off-limits sectors (vice enforcement of compliance).
3. Notify MFO headquarters of all violations or incidents.
4. Protect own force.
5. Operate base.

BN		SINAI	TF CDR	MG
			E	

Task Characteristics
Specialized knowledge:
Tasks were similar to some of battalion's METL.

Commander instituted pre-rotation training program. About 6 months prior to rotation, non-deployables were replaced and assignments were frozen. Commander cited this rotational training as one of the factors that increased command and control effectiveness.

Subordinates:
In preparing for the mission, the training challenge for the Task Force Cdr was to transition his soldiers from their normal combat mindset to one appropriate for peacekeeping while retaining the alertness necessary for security.

Commander cited "aggresive communications personnel" as a factor in increasing his effectiveness in command and control.

BN		SINAI	TF CDR	MG
			H	

Task Characteristics
Task similarity:
Subordinate units operated about 23 observation posts (OPs), reporting on land, sea, and air corridors and areas. Mounted, dismounted, and static elements operated concurrently: Cited by commander as one of the major factors in difficulty of mission.

Commander:
There was only limited training for Task Force Cdr to prepare him for sensitive issues in dealing with Egyptian and Israeli forces, as well as the intensity of scrutiny directed at the U.S. contingent.

Comments from Command and Control Database for Contingency Operations

-- Organizational Structure --

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
JTF		LA Riots	JTF J3	BG
Organizational Structure			H1	

Marines fit in well. Coordination with NG was good; avoided we-they environment. Put active battalion under NG bde. J3 had been classmate at War College with four NG commanders (eased coordination). Put LNO at each precinct to filter missions Army would accept. Maintained chain of command (e.g., X platoons rather than Y soldiers).

JTF	SAND FLEA	JTF CDR	MG
Organizational Structure		H	

As Commander of JTF-S, commander should have considered all of South America, but focussed on Panama. Chief of Staff handled rest of South America; no problems, but should have had BG in that role.

JTF	JUST CAUSE	JTF DCDR	MG
Organizational Structure		E	

Deployment of XVIII Corps to Panama to be the JTF headquarters was a good decision. Needed the depth of corps staff. Also USARSO was not geared to operating from a field location; as a forward deployed special mission force, it was equipped to operate from fixed facilities.

Special Forces reported to JTF-S rather than to CINC (the option of having Special Forces report directly to CINC had been considered). Commander considers having Special Forces under control of JTF-S to have been a good decision.

Staff

In-country staff (USARSO) conducted most planning. Members of that staff were subsequently integrated well with XVIII Corps staff to form the JTF staff. Both staffs avoided turf battles ("if deputy, take orders").

Most logistics came from USARSO assets. Logistician from USARSO staff was "unsung hero."

JTF	JUST CAUSE	JTF J3	LTG
Organizational Structure		E	

A major early decision was to designate XVIII Corps as JTF-S rather than to augment JTF-P. JTF-P was ideal for its purpose and its commander (MG Cisneros) was very courageous and competent. But it was decided in July/August that orchestrating a major reinforcement from CONUS required the depth available in a corps. Needed corps for standing capability to integrate indirect fire, direct fire and maneuver. XVIII Corps had frequently exercised that integration, ("well down the road towards professionalism of a joint task force") and its headquarters was well rehearsed in operational and tactical planning.

Also decided early (about August) for Joint Special Operations Command (JSOC), which would have capability for more complex command and control of special operations than the standing Special Operations Command-South (SOCOM-S). JSOC became JSOTF headquarters with SOCOM-S as one subordinate task force. Putting JSOTF under JTF-S (rather than directly under CINC) was a "huge decision" for the time. As a result special and conventional operations were well orchestrated. JSOTF did have separate communications net, primarily because of different equipment, but was also a station on the

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				

command net.

JTF-P was absorbed by JTF-S Headquarters (e.g., DCSOPS JTF-P became Deputy J3 of JTF-S).

JTF		PROMOTE LIBERTY	JTF J3	LTG
Organizational Structure		E		

Established Military Support Group (MSG) with capability for nation assistance. Except for command group--flag officer in command, a colonel deputy, and an operations section--MSG was organized by functional necessity:

Provost Marshall for police stability
Special Forces Officer for Civil Affairs and PSYOPS
Translation section
Legal section
Contractor section

At one time MSG included up to 1200 personnel. It was phased out as the need reduced and Embassy was phased in. Remnants were absorbed under J5 of JTF-P.

JTF	JTF	PROVIDE RELIEF	JTF CDR	LTG
Organizational Structure		E2		

2d Army staff became nucleus of JTF staff [e.g., 2d Army principal staff officers (Colonels) became deputies to the JTF staff principals (flag rank)]; 2d Army staff understood Federal Disaster Relief.

Joint aspects added needed capability, e.g., Navy was essential to port operations.

There was no JTF J2 (intel was received from J3 chain and Provost Marshall); establishment of a J2 would not have added value.

It is necessary to plan and organize to sustain the JTF while it accomplishes its primary mission.

JTF	JTF	PROVIDE RELIEF	JTF DCDR	MG
Organizational Structure		E3		

Joint aspects gave the right kind of supply and services; great capability.

JTF	JTF	PROVIDE RELIEF	JTF CS	MG
Organizational Structure		E2		

Staff from 2d Army formed nucleus of the JTF staff. Staff organization was similar to a war fighter JTF except for absence of J2. In retrospect, CoS would have J2 to get a better assessment of needs than was available through operations channels.

Structure was driven by requirement for jointness: J3, J4, J6, and J8 from Army; J1 and J5 from Navy. CoS initially preferred Army-only staff, but is now convinced that the directed joint structure was the best option. Services brought unique capabilities: Air Force expertise for Tactical

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank	Impact	Factor Rationale

Airlift Control (discharging cargo, interim storage, and interface with transportation); Navy "could repair anything," restored port, repaired most heavily damaged school buildings, and repaired schools' computers. Service identification did not interfere; instead the mix of services created a dynamic that enhanced professionalism.

Public Affairs Officer and Protocol Officer were vital. Special staff had more impact than anticipated, especially Surgeon, who coordinated with Public Health Service.

Staff was initially light on NCOs.

JTF	JTF	PROVIDE RELIEF	JTF J3	BG	E	Organizational Structure

PAO was located next to J3, originally because of a need to share a (scarce) telephone. Fortuitous because the close linkage between J3 and PAO was vital.

Command Group was reluctant to gather intelligence in the US: never referred to PSYOPS and did not have a J2. J3 put a logistics officer and operations officer in every cell to facilitate the flow of information about the situation.

Marine force was OPCON to ARFOR (consistent with doctrine, since missions were similar and Marine AO was in middle of 10 MTN AO, away from the coast).

Though National Guard was not officially part of JTF, they were integrated for briefings and some logistical support. NG were not nationalized; right decision since they were able to do law enforcement (e.g, guard banks). "NG did great job."

Excellent logistical support between AMC and J4. Received a massive influx of diverse materials form all over the US that would fill Orange Bowl five times. One truck might carry water, fresh food, fur coats (see METT-T factor heat), and furniture. It was politically imperative that everything be inventoried and stored.

JTF	JTF	PROVIDE RELIEF	JTF J3	BG	H	Organizational Structure

J3 dealt regularly with 21 people; very draining.

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
DIV	JTF	RESTORE HOPE	Div CDR	MG
Organizational Structure			H	

Army did not have an impact on JTF planning. Army provided people, but staff got so large it lost cohesiveness; as a result, each service tended to deal with staff members they knew.

Standing up a JTF requires a two-tier command and control system: base and augmentation. For this sort of mission, the base should be a 3-star headquarters with the capability for air-land-sea joint combined operations; in the Army that means a corps. The base should be tailored to the size of the operation, e.g., the TAC CP could be taken rather than the entire staff. The base should be augmented with a predesignated cell, e.g., a PACOM team of 20+ who train together and bring CINC's perspective. The doctrine for JTF is not yet adequate--the requirements are only implied by publications.

There was an extensive requirement for liaison officers (higher HQ and coalition forces) and brigade and battalion Civil Military Operations Officers (S5s). LNOs and S5s were drawn from division resources whose systems were not fully engaged (e.g., Fire Support Officers typically filled S5 positions). That approach worked in this operation, but would not be approopriate in a more lethal environment.

DIV	JTF	RESTORE HOPE	Div CDR	MG
Organizational Structure			E	

A division can serve as ARFOR, but it is stretched and requires augmentation, especially for communications. Department of the Army staff "bent over backwards" and doubled the size of the Signal Battalion.

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
DIV	7th Div	JUST CAUSE	Div CDR	LTG
Organizational Structure			E	

Early plans for Operation JUST CAUSE called for the 7th Division to be the primary force, with the division commander assuming command of the Joint Task Force South (JTF-S), which was to be established at the onset of hostilities. The revised plan added the 82nd Division and made the XVIII Airborne Corps the JTF. The 7th Division then became one of several key units subordinate to LTG Stiner, the XVIII Commander and the JTF Commander, with a resultant decrease in responsibility and pressure on CG, 7ID.

At the onset of JUST CAUSE, one brigade was in country working directly for JTF-Panama as part of NIMROD DANCER. The division initially deployed one brigade and supporting logistics and artillery support. Once the division was in Panama, it assumed command and control of the brigade which was in country. Three days into the operation, a Marine Corps regiment became OPCON to the Division. One brigade remained at Fort Ord and was later deployed, becoming attached to the 82nd Division upon arrival.

Chain of command was clear cut and posed no problems.

ADC-S remained at Fort Ord and coordinated resupply and deployment of follow-on units. There was constant interface between the Division Commander and the ADC-S. The link was especially important because of the likelihood that the remaining brigade would ultimately be deployed (it was).

DIV	7th Div	JUST CAUSE	Div CDR	LTG
Organizational Structure			H	

There was a need for significant augmentation of the G-5 section. Even now do not have enough authorized positions--3 or 4 people to coordinate and manage an RC Civil Affairs Group. One of the big mistakes, maybe the mistake of JUST CAUSE, was decision not to mobilize any RC units; civil affairs expertise was needed. Several thousand RC volunteers were deployed, mostly civiian policemen; they did not have the structure to train PDF to be police.

Division took full staff except G1, Chief of Staff, and Assistant Deputy Commander-Support (ADC-S). In retrospect, commander would have brought Chief of Staff. Because of the distances involved in monitoring subordinate units, commander spent little time at his headquarters and needed the Chief of Staff to coordinate the staff.

DIV	7th Div	JUST CAUSE	Div CDR	LTG
Organizational Structure			H	

Modularization:
During TF HAWK, aviation units were split between Panama and Fort Ord. Tool sets were required in both locations. Finally purchased a second set out of Army system.

Echelon Factor	Unit	Mission	Position	Rank
Rationale			Impact	
DIV	7th Div	PROMOTE LIBERTY	Div CDR	LTG

Organizational Structure E

For the PROMOTE LIBERTY phase, the Division Commander became JTF Commander in relief of CG, XVIII Corps. He maintained a normal JTF organization: Marine Corps, Navy, and Air Force were treated as separate elements. Within Army forces, the 193rd Brigade, normally stationed in Panama, operated separately from the 7th Division. An operations cell was established under BG Kinser who focused on work with the 193rd Brigade. A Military Support Group (MSG) was established with a political/diplomatic emphasis. COL Steele, the MSG Commander, worked effectively with Panamanians on nation building; he spoke Spanish and knew the government.

PROMOTE LIBERTY Staff

MG Cisneros filled a vital role as Deputy JTF Commander ("Unsung Hero of Panama"); could get anything done. A Spanish-speaker, he was known by the Panamanians.

Supplemented JTF-S staff by pulling up Chief of Staff and G2 from 7th Division. Transitioned JTF-S staff to final positions.

Lacked civil affairs assets to provide appropriate medical and sanitation support for Panamanians. For example, in hospital in Colon, morgue was obviously next to the cafeteria; could not get it moved. Inability to respond to obvious problems was a source of great frustration. There was a striking contrast between the overwhelming force for JUST CAUSE and the sparse support for PROMOTE LIBERTY.

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
BDE		JUST CAUSE	Brigade CDR	BG
Organizational Structure			E	

Brigade was task organized as the Division-Ready Brigade. Had a habitual training relationship with all but three slice elements (exceptions were MP, Civil Affairs, and PSYOPS). The habitual relationships enhanced effectiveness of command and control. Commander needs to have a "feel for the degree to which [subordinates] understand what you want done." A common understanding of task requirements and standards takes time to develop.

Being assigned to the 82nd Division "worked remarkably well under incredibly demanding circumstances." Commander of the 82nd Division made sure the division staff supported the brigade, and gave brigade commander full access to information. The good relations were probably facilitated by the friendship between the Division Commanders and respect for the brigade's experience in NIMROD DANCER.

Because commander expected to be ultimately under control of 7th Division, he made it a point to stay in contact with division commander and staff.

Staff

Took full staff except for Aviation officers.

Staff played major role in monitoring operations. The staff had extensive experience with each other and with the commander--including NIMROD DANCER, CTC rotations, and CPXs. Commander cited staff's knowledge of what he expected as the major factor in facilitating command and control.

The company commander of the CA Company also acted as S5.

The Staff Judge Advocate was a high multiplier. He gave valuable advice on law of war and diplomatic concerns, investigated claims of damage, and explained the theory of ROE.

BDE	JUST CAUSE	Brigade CDR	BG
Organizational Structure		H	

Did not take MP slice. Fort Ord MP company was not sufficient to support three brigades and meet installation security requirements. Brigade picked up an MP platoon from the 82nd Division and a company (-) from Fort Hood, resulting in three echelons that had not worked together previously. Initially kept platoon separate from company (-), since their missions were different. Later controlled platoon through the company.

BDE	PROMOTE LIBERTY	Brigade CDR	BG
Organizational Structure		E	

Received a Civil Affairs company from Fort Bragg, that was supplemented by RC personnel. Developed an assessment system based on function--such as health, water, and electricity. Received augmentees on demand. Ultimately worked with an RC CA company, which worked fine.

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
BN		SINAI	TF CDR	MG

Factor: Organizational Structure — Impact: E

Rationale:
Rifle Battalion Task Force (Air Assault) minus anti-armor company (TOWs were not authorized for the mission; total force was limited to 800).

TF was augmented with Aviation Co., Engineer Squad, MP Platoon, and Explosive Ordnance Destruction Team. Numbers, skills, and capabilities of augmentations were appropriate. Commander cited organic aviation support as one of the factors that increased his effectiveness in command and control.

Staff:
Augmented with contracting officer, surgeon, legal officer, public affairs officer, and finance officer. Task force provided civil affairs officer (S5) from its own resources. S2 section was augmented with linguists.

In retrospect, commander believes that it would have been useful to add a protocol section (2 or 3 people).

NOTE: Besides addressing normal civil affairs concerns, S5 activities provided opportunities for gathering information on possible terrorist activities.

Echelon	Unit	Mission	Position	Rank
BN		SINAI	TF CDR	MG

Factor: Organizational Structure — Impact: H

Rationale:
Received operational guidance and logistical support from CINC USAREUR through SETAF. Remained under command of 101st Division (continued to be rated by brigade commander with letter input from MFO commander).

Even within MFO, chain of command and responsibilities was complicated. The lieutenant general commanding the MFO Field Force was from Norway; the Chief of General Staff (primarily responsible for field operations) was from Australia; and the Chief of Staff (primarily responsible for administration) was from the U.S. Since U.S. forces cannot serve under command of a foreign officer, the formal chain of command ran from the Chief of Staff, but the informal and actual chain was to the MFO Field Force Cdr.
Lack of clarity in support and command channels complicated resourcing requirements, e.g., at one point the TF Cdr (a LTC) was told that helicopter fuel was being reduced to a point that he thought would hinder his ability to monitor and resupply OP sites. For redress, he called the U.S. Army Chief of Staff; the fuel reduction was rescinded. (See also Leader Characteristics, Confidence.)

Comments from Command and Control Database for Contingency Operations

-- Complexity of Environment --

Echelon	Unit	Mission	Position	Rank
Factor Rationale			Impact	
JTF		LA Riots	JTF J3	BG

Complexity of Environment H1

Tough METT-T and difficult ROE. Demands met because of well disciplined soldiers.

JTF		SAND FLEA	JTF CDR	MG

Complexity of Environment H

Mission: Lack of clear mission statement during Operation SAND FLEA was biggest problem during the Panama Campaign. ("'Get tough' is not a mission statement.") Problem was compounded by divergence between State Department ("hawks") and Department of Defense ("doves").

Ambiguities

Lacked clear guidance from most senior leadership during SAND FLEA. Guidance from State Department during SAND FLEA seemed intended to provoke an incident, sometimes in violation of treaty. For example, commander was told to establish a clandestine radio station on Fort Clayton, even though the treaty prohibited such political activity. Another example, there was not a consensus within Army and DoD that the risks in the overall operation were justified.

JTF		JUST CAUSE	JTF DCDR	MG

Complexity of Environment H

Enemy: PDF and, later, Dignity Battalions.

Troops: 10,000 in-country forces.

Terrain: Prepared subordinates for urban operations. Though some anticipated intense jungle warfare, IPB (accurately) discounted that possibility.

Prior to JUST CAUSE, Commander and USARSO staff conducted an accurate IPB on likely enemy reactions, but it was not always heeded by higher headquarters. Emphasis on never under-estimating an enemy seemed to increase the likelihood of over-estimating the enemy. Commander was frustrated that stereotypes (such as "anti-American Panamanians are like Lebanese fanatics") sometimes interfered with informed analyses.

Army forces did not get good information on Noriega location and intentions. Should have been available from CIA.

JTF		JUST CAUSE	JTF DCDR	MG

Complexity of Environment E

Constraints

None. Good aviation support.

JTF		JUST CAUSE	JTF J3	LTG

Complexity of Environment E

Mission: During JUST CAUSE, SOUTHCOM Headquarters continued to be responsible for developments throughout South America: responded to at least two drug crises, monitored operations in El Salvador, and tracked international reactions to JUST CAUSE. Handled well by DCINC and J2.

Time: There was sufficient time between receipt of mission and decision to

execute to permit development of a complete, coordinated plan, and to rehearse it extensively. In absence of standing JTF, sufficient lead time to plan and prepare is essential to avoid "ad hocery"

Ambiguities
The evolution of plans was based on changes in IPB. Prior to assault on Panamanian Vice President Ford, planners had expected a neutral, or even supportive PDF in overthrow of Noriega. As the uncertainties were resolved, plans were sharpened: force size was increased and the emphasis changed from sequential to simultaneous operations.

The ambiguity for subordinates was controlled by emphasis on a clear commander's intent. Elements of that intent were:

Overwhelming force
Good at night
Freeze the enemy so he is unable to reinforce
Limit collateral damage
Limit casualties

Development of the CINC's intent was a high priority involving all commanders down to division level in a consensus building effort, the results of which were agreed to by the CINC. (It was not a council of war--CINC had the only final vote.) The intent was subsequently relayed on down to the individual private. (Guidance "came out hard as granite.")

JTF JTF PROVIDE RELIEF JTF CDR LTG

Complexity of Environment H2
FEMA had to be in control, but was ineffective because of layering. Involvement of US Secretary of Transportation was critical to eliminating obstacles.

Did not expect the competition and disagreement between city, county and state personnel.

Initial assessment of situation and needs by state was inadequate. State was not well organized for emergency: TAG should have been the official designated to coordinate and direct state relief efforts; he was not. State also lacked mechanism for assessment; and governor was reluctant to request help due to uncertainty about payment for outside resources.

CG improved information flow by instituting "shadow" counterparts--each commander was tied to a civilian agency (individual or advisory group responsible for governmental functions); this liaison / coordination also aided disengagement since consensus to disengage developed at the grassroots level and then built upwards.

Constrained by inability to activate local USAR engineer unit.

Echelon	Unit	Mission	Position	Rank
Factor Rationale			Impact	
JTF	JTF	PROVIDE RELIEF	JTF DCDR	MG
Complexity of Environment			H2	

Political sensitivities had to be considered for every decision.

JTF	JTF	PROVIDE RELIEF	JTF CS	MG
Complexity of Environment			H2	

Time constraints required 24 hour operations, which stressed staff nodes.

The high early demands for emergency services coincided with the greatest turbulence in building the staff. Media graded JTF "contribution" from the on-set; increased sensitivity of decisions.

Did not have a consistently clear picture of ground truth of needs.

JTF	JTF	PROVIDE RELIEF	JTF J3	BG
Complexity of Environment			H	

Extent of suffering lent sense of urgency. Civilians and military faced a genuine risk of life from contaminated water. Heat complicated operations.

ROE (how system works) was not clear initially. Once clear, responsibility was not stable. DOD influence expanded beyond its two doctrinal ESF. In some cases, DOD filled leadership vacuums. In other cases the scope of the disaster was beyond NGO resources; e.g., housing requirements threatened to bankrupt Red Cross, so DOD assumed responsibility for the housing ESF.

Echelon	Unit	Mission	Position	Rank
DIV	JTF	RESTORE HOPE	Div CDR	MG

Factor Impact

Rationale

Complexity of Environment H

METT-T factors made command and control more difficult:

Mission: Operation RESTORE HOPE was subject to "mission creep." Creep resulted, in part, from the implied need to coordinate with a government that was not in place (led to establishing councils), as well as from additional requirements (e.g., disarm warring factions). Some of the creep resulted from unit-initiated efforts to enhance morale (e.g., assist in schools and orphanages) and develop credibility with local leaders (e.g., build roads).

Enemy: Lethality for RESTORE HOPE was comparable to operations in Panama: MOUT environment and difficulty of identifying friendly from unfriendly. Forces also had to cope with ambushes, minefields, threat of terrorism, and easily incited populace.

Terrain: The area of operations (21,000 square miles) was much larger than normal for a division. As a result, battalion commanders were stretched thin--did not want to operate below company level. Also, initial areas of responsibility were established without regard to cultural and political boundaries. That increased the difficulty of command and control because it increased both the number of people to coordinate with and the number of people coordinating with a given government entity.

The initial stages were hindered by "strong but wrong" IPB. Forces expected strong factional fighting, resistance to coalition forces, limited local governments, and extreme starvation throughout country. Forces found limited factional fighting, limited organized criminal activity, total anarchy, and isolated areas of starvation. This experience reflects a persistent problem with intelligence operations for low intensity conflict where units need to tailor operation based on HUMINT. Services are "intelligence challenged" in OOTW environment.

Echelon	Unit	Mission	Position	Rank
Factor Rationale			Impact	
DIV	7th Div	JUST CAUSE	Div CDR	LTG
Complexity of Environment			H	

METT-T

Mission: Need for operational security made deployment especially difficult. Moved from Fort Ord to Travis Air Force Base (140 miles) and flew out without being detected by intense media scrutiny. (Aided by fog.)

Mission was complex: take down PDF and then restore it as protector of the people.

Enemy: PDF and Dignity Battalions. Most Dignity Battalions were not effective fighting forces ("small groups of thugs"). Enemy was not hardened and units tended to dissolve because of weak leadership. Still, force was so integrated into population that any action posed risks of collateral casualties.

Terrain: Distance was a major factor in increasing the difficulty of command and control. Units operated from Colon to Panama City and to Costa Rica border at one time. Later, units shifted east of Panama City and operated to Columbian border. As a result, commander spent most of his time flying between sites ("commanded out of Black Hawk"). Lack of security of roads and shortage of aircraft increased the difficulty of command and control for brigade and battalion commanders. One brigade had area of operations that was 200 miles long and the width of Panama. Guerilla warfare in jungle was not a problem. ("They were not going to get far from nearest air conditioning. They were not hardened soldiers.")

Ambiguities

During early stages of deployment, intelligence was very poor. Since aircraft assigned for deployment did not have hatch mount satellite communications gear, commander did not have communication with JTF Commander. During stop for refueling, commander got up-date from CNN and called JTF Cdr on STU III. Received inconclusive reports about mortar attacks at airfield.

Intelligence reports were generally confused about enemy status. Many dignity battalions were reported, but most were not effective combat forces. Division also persistently received inaccurate reports of the number of enemy weapons; e.g., told to expect no more than 6 or 7 mortars, but captured 30. One brigade commander summarized: "When an ally becomes an adversary, intelligence is lacking."

Reporting was a weakness. It was hard to get accurate reports. For example, numbers of weapons taken reported in SITREP for President were wildly exaggerated. If numbers are required, need to take time to get accurate count. (Later cut estimates; though closer to truth, carried public relations price.)

Rules of engagement fluctuated almost daily--became tighter as conditions stabilized. Loose rules put an incredible burden on junior leadership.

Constraints

Echelon	Unit	Mission	Position	Rank
Factor Rationale			Impact	

Insufficient number of aircraft limited effectiveness. Commander wanted to get into country a day early to coordinate deployment, contingent on aircraft with a command communications package. However, aircraft was not made available.

Once in country the number of helicopter sorties planned was not adequate to cover the dispersed forces. Division was able to get help from RC C130s that were in-country. Lack of sorties had biggest impact on brigade, battalion command and control.

Lack of logistics was a problem early, but division recovered. Commander assigned low priority to deployment of logistical personnel and assets in favor of combat forces, but did not get the in-country support anticipated, especially transportation. For example, Division did not originally take trucks because of expectation that helicopters would be available--they were not.

DIV	7th Div	JUST CAUSE	Div CDR	LTG
Complexity of Environment			N	

Troops: Two organic brigades, Artillery and Support units, and one Marine Corps Regiment.

Echelon	Unit	Mission	Position	Rank
Factor Rationale			Impact	
BDE		JUST CAUSE	Brigade CDR	BG
Complexity of Environment			E	

Troops: Commander is proud of the discipline exhibited by soldiers. For example, one woman evicted from "Nicaraguan Ambassador's" house (see Politics) spit in the face of an infantryman. He did not respond.

Constraints

Took about 50% of organic vehicles. Though support units had some challenges, number of vehicles was sufficient.

Commander was reluctant to contract for additional vehicles because he wanted to avoid security problems associated with working with host nation people.

BDE		JUST CAUSE	Brigade CDR	BG
Complexity of Environment			H	

METT-T-P

Mission: When he arrived in Panama, the commander was unsure of what his mission was to be. He carved out mission and Area of Operations (AO) with 82nd Division Commander. Mission was to provide security for a portion of Panama City, but from the beginning it had included humanitarian and nation building activities. Over time the emphasis shifted, but on most days, brigade conducted both kinds of operations.

Enemy: Besides PDF and Dignity Battalions, brigade dealt with alleged drug dealers, drive-by shooters, snipers, and hard core criminals. Also expected to apprehend civilians from the Noriega regime on the "famous persons list." Commander cited variety of enemy as one the factors that increased the difficulty of command and control.

Terrain: Mostly urban, including wealthy residential areas, industrial ares, business districts, and severe slums. About one million people were in the AO. Intense heat increased the difficulty of clearing buildings.

Time: Mission required 24 hour operations.

Politics: (Added by the commander as an inherent part of the environment that complicates contingency operations.) An example of the frustrating effects of political considerations was the disarming of the "Nicaraguan Ambassador's" house. The brigade received reports that large quantities of weapons were being collected at a house that belonged to a man who claimed to be the ambassador from Nicaragua to Panama. Since State Department could not verify the man's credentials, the brigade was authorized to clear the house of weapons. After removing "an incredible amount of automatic weapons," brigade was told to replace the weapons.

Ambiguities

Information for urban operations needs to be more precise than in typical intelligence reports. When a squad faces a task like apprehending a famous person, a six-digit grid coordinate may put them in the right block, but they need more precision to narrow down the 10,000 people in the area.

Echelon Unit Mission Position Rank
Factor
Rationale
Impact

ROE (Commander prefers "rules of confrontation") were not constant, in part because of political influences. For example, latitude to search cars entering or leaving an embassy depended largely on the state of relations with the embassy. Commander cited variable ROE/ROC as a factor that increased difficulty of command and control.

Echelon	Unit	Mission	Position	Rank
Factor Rationale			Impact	
BN		SINAI	TF CDR	MG
Complexity of Environment			E	

Troops: 800 person task force. No significant shortages from MTO&E.

BN		SINAI	TF CDR	MG
Complexity of Environment			H	

METT-T:

Mission: Concurrent with complicated peacekeeping mission, task force was responsible for base operations and OP site sustainment. Complicated by having Italian Boat Cdr (higher rank than TF Cdr) staff and personnel located at task force base. Other tenants included a large contingent of contractors and civilian employees, and a small Dutch communications unit. Task force XO controlled base operations.

Enemy: Possible terrorist activities. High concern about this threat was cited as a factor that increased difficulty of command and control.

Terrain: Widely dispersed OP sites, inhospitable terrain and climate (30-130 degree F temperature range). Commander cited distance and terrain variations as factors that increased difficulty of command and control.

Ambiguities:

Overall roles and missions of agencies and governments were not clear. Very weak coordination and cooperation ("black hole"). Since Dept. of Defense was not in lead role, there was persistent confusion between State Dept. and AMC.

Egyptian and Israeli forces persistently tested limits of agreement. For example, one force began constructing defensive positions in an area where such positions were prohibited. When notified of violation, they challenged accuracy of U.S. maps. Such confrontations were highly charged. Israeli mounted patrols frequently "got misoriented" while traversing off-limits terrain to plumb observer reactions.

Constraints:

Base infra-structure was not complete early in operation.

High competition within MFO for resources.

Comments from Command and Control Database for Contingency Operations

-- Technology --

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
JTF		LA Riots	JTF J3	BG
Technology			E2	

Great benefits from command and control helicopters and night capability.

JTF		JUST CAUSE	JTF J3	LTG
Technology			E	

Tactical communications satellite enabled secure control of some special operations by communicating separately from the command net.

JTF	JTF	PROVIDE RELIEF	JTF CDR	LTG
Technology			E2	

Lacked communications early. Once systems were in place, communications made control easier.

JTF	JTF	PROVIDE RELIEF	JTF DCDR	MG
Technology			E3	
JTF	JTF	PROVIDE RELIEF	JTF CS	MG
Technology			N	

Strength and weaknesses balanced. Strengths: tactical communications and TAC SAT plus internal signal expertise eased C2. Weaknesses: FEMA and other civilian agencies had only telephone capability; cellular connectivity was initially blown away and, when restored, grid could not support the traffic. Once telephone service was established, FAX was valuable.

JTF	JTF	PROVIDE RELIEF	JTF J3	BG
Technology			E	

MSE and FM communications equipment was plentiful and helpful. Could not count on cellular--network could not support the number in use.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
DIV	JTF	RESTORE HOPE	Div CDR	MG
Technology			E	

Communications and aviation assets were major multipliers. Division needed to be augmented with communications.

DIV	7th Div	JUST CAUSE	Div CDR	LTG
Technology			E	

Commander initially did not have helicopter with adequate command and control capability (communications and range); finally brought the Division Command helicopter from Fort Ord. Allowed brigade commanders use it for command and control and to monitor operations.

Did have tactical satellite capability. As a result was able to maintain liaison with Corps commander.

DIV	7th Div	JUST CAUSE	Div CDR	LTG
Technology			H	

Global positioning system would have helped (would have avoided the navigational error that resulted in minor border violations of Costa Rican border during an airmobile operation).

BDE		JUST CAUSE	Brigade CDR	BG
Technology			H	

The urban environment presented problems for Army communications equipment. As expected, buildings attenuated the range for FM communications. In addition, more sophisticated equipment, such as the microwave communications at the American embassy, would burn out Army communications. As a result the Brigade CP had to move frequently: Sites included a bar and grill, the American high school, a hotel, a church, and a beer bottling plant. Some movements would have been required for security reasons, but the need to shift communications to monitor changing battalion operations increased the number of changes.

BN		SINAI	TF CDR	MG
Technology			E	

Had a Motorcycle Section; mobility gained was useful.

BN		SINAI	TF CDR	MG
Technology			H	

Task force had two tactical satellite communications devices, but had to compete with Navy for access to channels. Microwave communication system was not fully functional ("lumpy"). Commander cited communications as factor that increased difficulty of command and control. (Previous task force initially had no microwave capability and had to set up FM relay stations, greatly complicating control.)

Did not have position locator capability except in helicopters. Would have simplified control.

Comments from Command and Control Database for Contingency Operations

-- Individual Characteristics --

Command and control factors:

Echelon	Unit	Mission	Position	Rank
Factor Rationale		Impact		
JTF		LA Riots	JTF J3	BG
Leader Characteristics		E1		
JTF		SAND FLEA	JTF CDR	MG
Leader Characteristics		E		

Knowledge of language/culture in general, and PDF in particular, provided the basis for sensing limits of provocation during SAND FLEA. Such knowledge was also essential for setting up national police force, for example, distinguishing professional officers from the corrupt.

JTF		PROMOTE LIBERTY	JTF CDR	MG
Leader Characteristics		H		

Commander was deeply involved in defining end-state for PROMOTE LIBERTY: Get Americans out; purge corrupt colonels; restore law and order. Although defining end-states is a legitimate function of policy makers, American commanders in similar operations should expect to be involved. In Panama, with the drawn down Embassy staff, American commanders had the lead in defining end-states.

JTF		JUST CAUSE	JTF J3	LTG
Leader Characteristics		E		

Very good match between General Thurman (CINC) and LTG Stiner (Commander of JTF-S). Thurman is "not like the rest of us; most incisive man I've ever met." Stiner could "keep up in the thinking business" and had no desire to think at strategic level or to talk to higher echelons.

Thurman stood behind banks of communication devices, monitoring operations and
"thinking days, at least hours, ahead."

JTF	JTF	PROVIDE RELIEF	JTF CDR	LTG
Leader Characteristics		E3		

Requirements were within the ability of a senior commander: organize and analyze a mission. Emphasized end-states for disengagement ("tents down, trailers up") from the beginning.

JTF	JTF	PROVIDE RELIEF	JTF DCDR	MG
Leader Characteristics		E3		

Deputy Commander was "outside" man. Stressed frequent contact with units. JTF Commander was more attuned to potential political consequences than most other senior officers would have been. For example, he understood the degree of effort required to prepare the population for disengagement. Excellent staff.

JTF	JTF	PROVIDE RELIEF	JTF CS	MG
Leader Characteristics		E3		

CoS style was "to recognize high speed ponies and be light on the reins." Maintained a light atmosphere in headquarters. Staff (officer and enlisted) were well trained and pulled together.

JTF	JTF	PROVIDE RELIEF	JTF J3	BG
Leader Characteristics		E		

J3 rarely got out of HQ. Emphasized accessibility to help solve problems. Great Chief of Staff; was former Deputy PAO of the Army.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
DIV	JTF	RESTORE HOPE	Div CDR	MG
Leader Characteristics			E	

The key requirement for leaders was flexibility. Battalion commanders "did a magnificent job" despite being stretched thin.

Commander established end-states and criteria, e.g., completion of Somali Road. Commander and staff synchronized operations through the BOS (minus Air Defense) plus force protection, external coordination, and information dissemination.

Commander improved security through dissemination and enforcement of simple rules ("Four NOs" directed at gun control): No bandits, no technicals (vehicle-mounted weapons), no checkpoints, and no visible weapons.

DIV	7th Div	JUST CAUSE	Div CDR	LTG
Leader Characteristics			E	

Extensive experience in Airborne and Light operations was invaluable for deployment.

One of prime requirements for commander of similar missions is a conviction that decisive action is inevitable. Necessary to maintain focus for immediate response. For example, commander had instituted ban on drinking alcohol for aviators in country during TF HAWK and NIMROD DANCER. Aviators objected to requirement and expressed the widely held opinion that nothing decisive was going to happen. Commander insisted that subordinates continue to act as if action was imminent.

"Blessed with great subordinate commanders." Had the right brigade commanders in right places to exercise their personal strengths. Quality of subordinate commanders increased effectiveness of command and control. They understood the commander's intent.

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor Rationale			Impact	
BDE		JUST CAUSE	Brigade CDR	BG
			E	

Leader Characteristics

Commander was well prepared for the operation. Experience in NIMROD DANCER was especially important: (a) Expected to return to Panama (expected JUST CAUSE six months earlier), so had thought through issues, such as likely ROE/ROC; (b) Experience was, in part, the basis for trust that enabled the good relationship with the 82nd Division Commander.

Essential requirements for leaders in contingency operations are technical expertise and the self-confidence that comes from competence. Preparation should focus on how to think rather than what to think. Leaders need to understand principles and sensitivities to be able to make rational decisions ("this is an intellectually challenging business"). Understanding should be developed as part of professional development rather than through changes to METL.

Battalion commanders were experienced in working with the commander. All had been with the commander about one year (one as XO, others as battalion commanders). Commander cited "knowledge of subordinates and their knowledge of me" as major factor in facilitating command and control.

Command and control factors:

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
BN		SINAI	TF CDR	MG
Leader Characteristics			E	

The MFO Field Force Commander (LTG F. "Bull" Hanson, Norway) had extensive experience with peacekeeping missions and provided valuable mentoring and "tutorials" on the need for credibility and objectivity in the U.S. force. He took an active role in ingraining the rules of engagement by presenting situations to personnel on duty and asking how they would respond.

Commander considers the higher headquarters (U.S. and MFO) to have been supportive. Cited "sincere support" and "freedom of action in my sector" as factors that increased effectiveness in command and control.

Task Force commander was highly confident. Confidence was especially important since he represented the U.S. Army and had to defend command issues with a variety of high ranking visitors. For example, the task force treated each OP as a defensive position, including firing positions, trip flares, and perimeter patrols (no minefields, although there were many minefields from earlier wars). A State Department official assigned to Israel (not the ambassador) told him that the defenses were an affront to civilians and the governments, and should be removed. The Task Force Cdr said that he was responsible for the protection of his unit against terrorist action; he would only change the SOP if he received a written and signed order relieving him of that responsibility. He never got that order.

Commander cited "strong subordinate leaders" as a factor that increased his command and control effectiveness.

Comments from Command and Control Database for Contingency Operations

-- Unit Continuity --

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Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
JTF		LA Riots	JTF J3	BG
History			E1	

Preserved structure and familiar task organization. Minimized cross-attachments.

JTF		SAND FLEA	JTF CDR	MG
History			E	

Commander's personal reputation among Panamanians made him a central figure in Noriega's efforts to provoke over-reaction. Commander received repeated reputable death threats and his family was harassed (e.g., on one occasion, his wife's car was surrounded and attempts were made to intimidate her).

JTF		JUST CAUSE	JTF DCDR	MG
History			E	

Generally high reputation of in-country Army forces and commander was very valuable in re-establishing order. Panamanians tended to gravitate toward 193rd Separate Infantry Brigade (SIB), which had been deployed to Panama for years, to surrender or to provide information. Seventy five percent of all weapons captured in Panama City were captured by 193rd SIB.

The merger of in-country command and staff with XVIII Corps and, later, 7th Division provided continuity of operations.

JTF		JUST CAUSE	JTF J3	LTG
History			E	

Integrating commander and staff with XVIII staff for JTF-P headquarters provided
continuity of operations during JUST CAUSE.

JTF	JTF	PROVIDE RELIEF	JTF CDR	LTG
History			E2	

Commander had been involved in military assistance to civil authorities in previous assignment in Alaska (e.g., dealt with pipeline issues). He was familiar with procedures as well as resources (e.g., disaster computer network). CG had also made it a point to review relevant 2d Army SOP as soon as he took command.

2d Army personnel had superimposed DCO responsibilities on Readiness Groups; they benefitted from knowledge of National Guard, civilian authorities, and details of working with FEMA.

JTF	JTF	PROVIDE RELIEF	JTF DCDR	MG
History			E3	

2d Army had established a good SOP for disaster relief; at least one other CONUSA has used it as a model. Refined procedures in response to Hurricane Hugo.

JTF	JTF	PROVIDE RELIEF	JTF CS	MG
History			H1	

Participants from outside 2d Army were not familiar with the relationship between the military and civilian agencies in domestic disaster relief operations.

JTF	JTF	PROVIDE RELIEF	JTF J3	BG
History			E	

J3 did not have a prior working relationship with other J staff or with

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				

operations staff. People got up to speed quickly. As a rule, prefers not to weaken war fighting capability by taking intact staffs.

DIV	JTF	RESTORE HOPE	Div CDR	MG
History			E	

It was tremendously important that ARFOR staff and core of force were an existing team rather than an ad hoc organization.

Division benefitted from experience with Operation PROVIDE RELIEF (Hurricane Andrew). The experience illuminated the need to define end-states and provided experience with NGOs and PVOs.

DIV	7th Div	JUST CAUSE	Div CDR	LTG
History			E	

In both operations (JUST CAUSE and PROMOTE LIBERTY), the Division operated in the framework of its standard organization.

The Division was familiar with the plan for JUST CAUSE, and had rehearsed it thoroughly.

BDE		JUST CAUSE	Brigade CDR	BG
History			E	

The habitual relationship with slice elements facilitated command and control.

The experience gained from NIMROD DANCER was a major factor in preparing the brigade, at all levels, for JUST CAUSE.

BN		SINAI	TF CDR	MG
History			E	

Maintained the existing organization command structure (per MTO&E) within the Task Force.

Comments from Command and Control Database for Contingency Operations

-- External Organizations --

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
JTF		LA Riots	JTF J3	BG
External Organizations			H1	

Unexpected gulf between Sheriff and Police Departments caused some initial problems. Once all understood limitations, relations stabilized. Many agencies were involved.

JTF		SAND FLEA	JTF CDR	MG
External Organizations			H	

SAND FLEA: Substantial inter-agency coordination/conflict among DoD, US Embassy, and CIA. Since mission was not clear, it was hard to obtain unity of effort.

JTF		JUST CAUSE	JTF DCDR	MG
External Organizations			E	

JUST CAUSE: Since mission was clear (and military), other agencies backed off.

JTF		PROMOTE LIBERTY	JTF CDR	MG
External Organizations			H	

PROMOTE LIBERTY: Other agencies were not a factor, though Army could have used support.

JTF		JUST CAUSE	JTF J3	LTG
External Organizations			E	

JTF components were vital during planning. Effectiveness was enhanced by "tone setting for jointness," which avoided service biases.

Commander maintained an open net to National Military Command Center (NMMC including Secretary of Defense, Chairman of Joint Chiefs, Chief of Staff of the Army, Army DCSOPS; interviewee was not aware of participation by Chiefs for other services). NMCC rarely came up on net: Except for maybe two occasions, direction of communication was "us to them and they responded."

There was only a small group at Embassy, headed by the Charge d' Affaires. He was tied in closely for briefings during events prior to JUST CAUSE and orchestrated bringing the new Panamanian government together. As a result, the Embassy was not a major player during the JUST CAUSE phase, although it did pass some information to the U.S. military.

JTF	JTF	PROVIDE RELIEF	JTF CDR	LTG
External Organizations			H1	

Organized help which could be focussed (e.g., religious organizations such as Mennonites) made mission easier. Media were a neutral factor in terms of impact on span of command and control: press conferences drained time, but also got information out. CG incorporated monitoring agencies (e.g., GAO and Army Audit Agency) as early as possible. There was some friction with higher commands on requests not relevant to end-state (e.g. number of mobile kitchen teams).

JTF	JTF	PROVIDE RELIEF	JTF DCDR	MG
External Organizations			E2	

Other agencies provided capabilities that reduced burden on JTF.

JTF	JTF	PROVIDE RELIEF	JTF CS	MG
External Organizations			H2	

High number of VIP visitors. CoS devoted high proportion of time to media relations--every report sensitive. During initial stages, it was hard to

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				

tell the lines of responsibility for NGOs. Involved external functional experts (e.g. AAA and GAO) in early decisions; contributed to positive resource management and proactive assistance (such as classifying cots as consumable to facilitate distribution).

JTF	JTF	PROVIDE RELIEF	JTF J3	BG
External Organizations		H		

Negotiated all legitimate requests (99) from FEMA. Required every human relations skill to keep efforts effective (e.g., took 5 days to get out of a legal order to build a tent city in a swamp). Good leadership in FEMA, but staff sometimes lacked sense of urgency.

JTF	JTF	PROVIDE RELIEF	JTF J3	BG
External Organizations		E		

All NGO were required, but only DOD could have handled magnitude of the disaster.

Echelon	Unit	Mission	Position	Rank
DIV	JTF	RESTORE HOPE	Div CDR	MG

Factor Impact

Rationale

External Organizations H

The operation was extraordinarily complex: Joint, coalition, and large number (49) of NGOs and PVOs. Coalition operations were hampered by language differences with Moroccans and Belgians (they understood English but were probably less fluent than U.S. officers assumed). ARFOR developed a checklist of staff functions and BOS to help integrate coalition forces into its operations. Overall, the coalition was more supportive of US direction than in DESERT STORM.

The NGOs and PVOs complicated command and control. While their involvement was critical ("true heroes"), they did not necessarily agree on end-states. Some NGO/PVO were openly hostile to the military, though much of that animosity was resolved through personal relations. Maintaining liaison consumed substantial time. The ARFOR established a Humanitarian Operations Center in each AO to meet with the relevent organizations; G5 met daily at each center; the commander met periodically.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
DIV	7th Div	JUST CAUSE	Div CDR	LTG
External Organizations			N	

Media attention during pre-deployment phase threatened OPSEC. Were able to get out of California without being detected.

DIV	7th Div	JUST CAUSE	Div CDR	LTG
External Organizations			E	

Coordination with other services was not a problem. Liaison officers were in place when Division deployed.

Air Force was very effective in coordinating deployment. Air Force "pulled it together" with little apparent problem.

Marine Corps regiment was assigned to 7th Division and contributed to stability by their presence. Since Marines were not heavily engaged, some in command structure reportedly felt slighted. Marines had been responsible for guarding ammunition storage area; Division Commander rotated that responsibility with the Army to share the more menial tasks. Communication equipment was compatible and Marines were responsible for their own logistics.

DIV	7th Div	PROMOTE LIBERTY	Div CDR	LTG
External Organizations			H	

Had anticipated that there would be robust organization and mission orientation from State Department--including US AID and Ambassador--which did not materialize. Problems arose, for example, Air Force converted a hangar to house displaced and homeless persons which Commander wanted to turn over to US AID. But US AID provided only 2 people who contributed little. The facility and its occupants developed an array of urban problems normal to a small city, and was the favorite project of the wife of the Panamanian Vice President. As a result, Army forces and commanders spent an inordinate amount of time supervising humanitarian efforts in the hangar.

Reconstitution of the Embassy staff and capabilities did not occur in time to facilitate 7ID operations in PROMOTE LIBERTY.

BDE		JUST CAUSE	Brigade CDR	BG
External Organizations			E	

Coordinated with churches, schools, university, and hospitals as mechanisms to distribute food and sources of HumInt. Churches were receptive, university tended to resist. Relations with hospitals varied. In one incident, a unit from the brigade was tasked to clear weapons from a hospital from which one or more snipers fired on U.S. forces and the U.S. Embassy. During the clearing process, an enlisted member of an engineer squad detected a trip wire that would have destroyed a wing (primarily PDF wounded). Hospital staff became more cooperative.

Also coordinated for facilities to house soldiers. Preferred schools because of water, latrines, and fenced boundaries.

Appendix C

Interview Form for War Fighting Operations

The material presented in this appendix corresponds to that given to a division commander at the beginning of his individual interview session. The purpose of this handout material was to provide some structure for the interview. It also provided a structured format into which the commander could record his responses to certain standard queries put to him during the interview by members of the Project team. Similar "structured" interview material was prepared specifically for and given to other officers from different duty positions and echelons. The same type of material was used for both individual and group interview sessions.

Division Commander

Context of the Operation

Mission:

Enemy:

Troops:

Terrain:

Time:

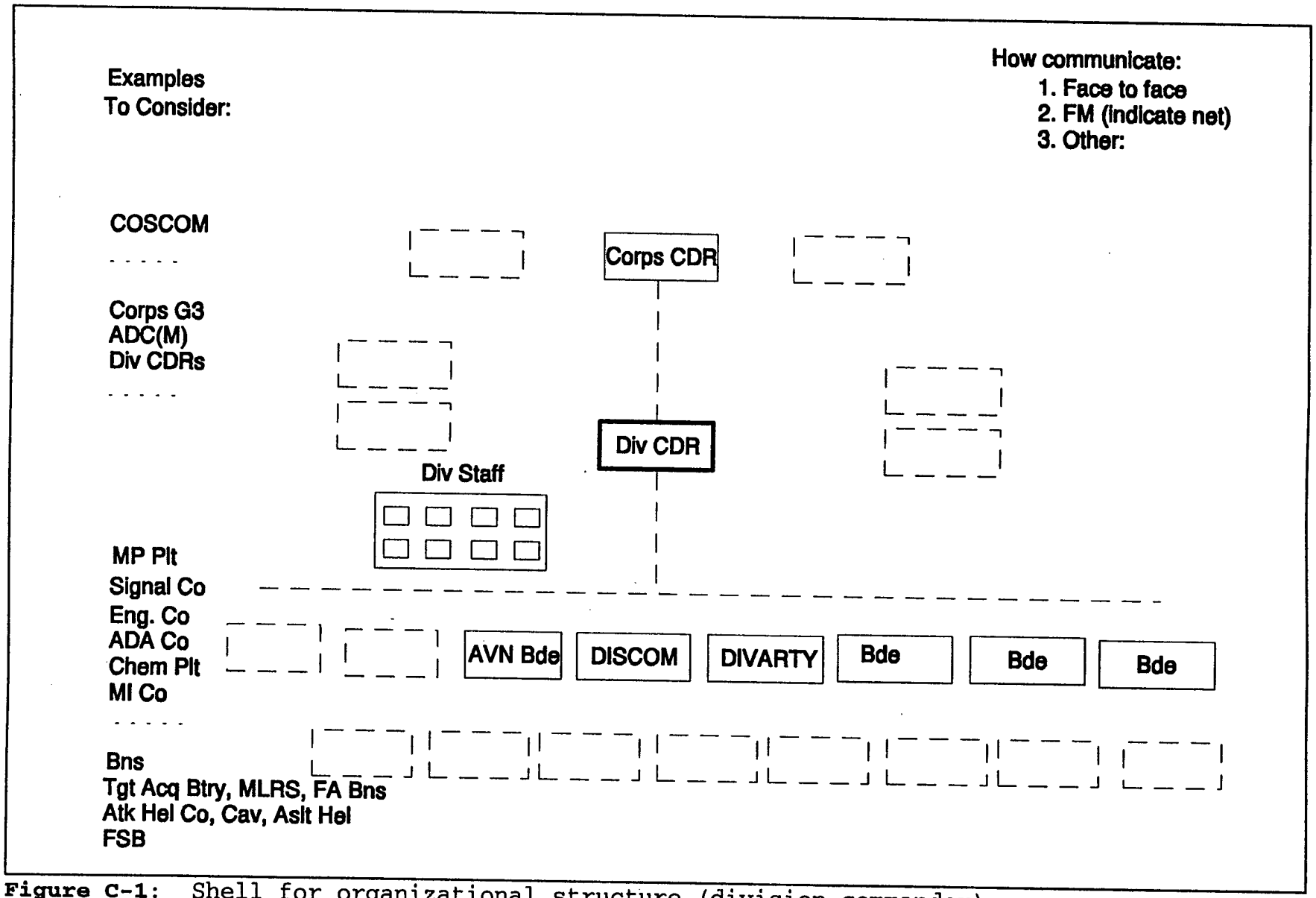


Figure C-1: Shell for organizational structure (division commander).

Impact of Factors

Rate the impact each factor had on the difficulty of command and control during the mission you described. If the factor did not affect your command and control, circle the X in the None column. If the factor made command and control easier, circle the number in the Made Easier column that indicates the strength of the impact. If the factor made command and control more difficult, circle the appropriate number in the Made Harder column.

Scale for Impact

1: Slight Impact (Made command and control slightly easier or slightly more difficult)

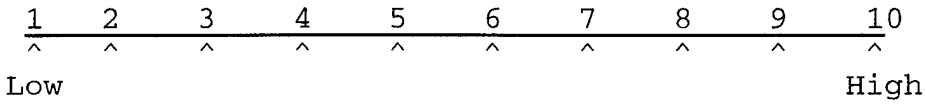
2: Moderate Impact (Made a clear difference in the ease or difficulty of command and control)

3: Strong Impact (Had a major effect on the ease or difficulty of command and control)

Factor	Impact on Command and Control						
	None	Made Easier			Made Harder		
Task Characteristics	N	1	2	3	1	2	3
Organizational Structure	N	1	2	3	1	2	3
Complexity of Environment	N	1	2	3	1	2	3
History	N	1	2	3	1	2	3
Technology	N	1	2	3	1	2	3
Leader Characteristics	N	1	2	3	1	2	3
External Organizations	N	1	2	3	1	2	3
Other		1	2	3	1	2	3

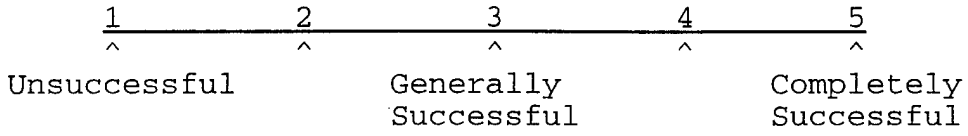
Workload

How much time and effort did this mission require of you and your staff? High ratings (8-10) mean you and your staff were working very close to full capacity. (Circle one)



Success of Mission

How successful was your unit in accomplishing its assigned mission?



Appendix D

Distribution of Impact Ratings for War Fighting Operations

The figures in this appendix show the pattern of responses by echelon for each rating category. Each officer rated each factor in terms of its impact on the difficulty of command and control:

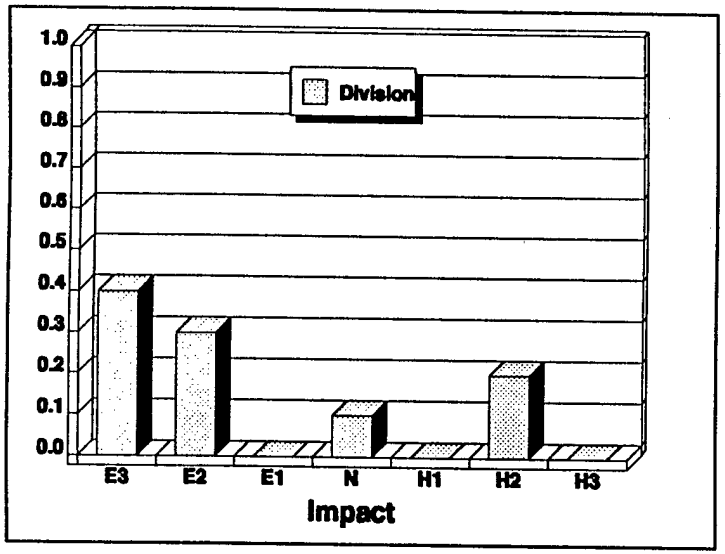
Much Easier	E3
Somewhat Easier	E2
Slightly Easier	E1
No Impact	N
Slightly Harder	H1
Somewhat Harder	H2
Much Harder	H3

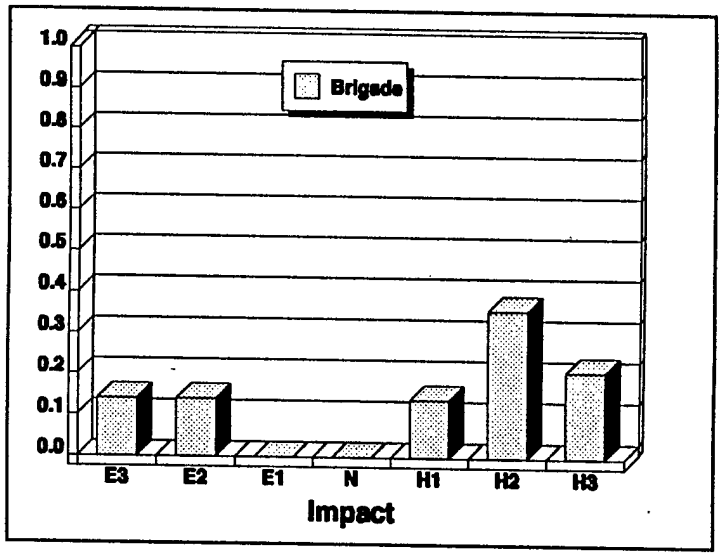
Since the figures show the proportion of officers interviewed who chose each rating, the number of officers at each echelon is relevant:

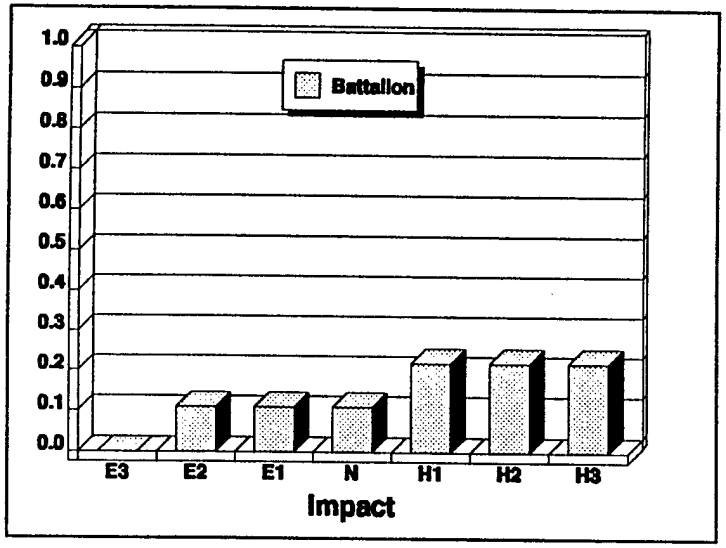
Division:	N = 10
Brigade:	N = 14
Battalion:	N = 9
Company:	N = 8

As an example of how to read the figures, consider the division ratings for Task Characteristics in Figure D-1. Four division officers (.4 of 10 officers interviewed) chose the "E3" rating (task characteristics made command and control much easier); three chose "E2" (somewhat easier); one officer chose "N" (task characteristics had no impact); and two officers chose "H2" (task characteristics made their command and control somewhat harder).

Figure D-1. Distribution of ratings of task characteristics.







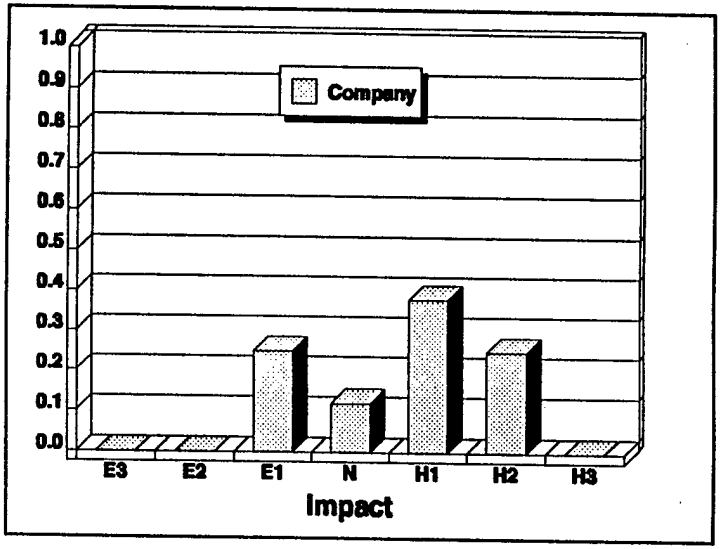
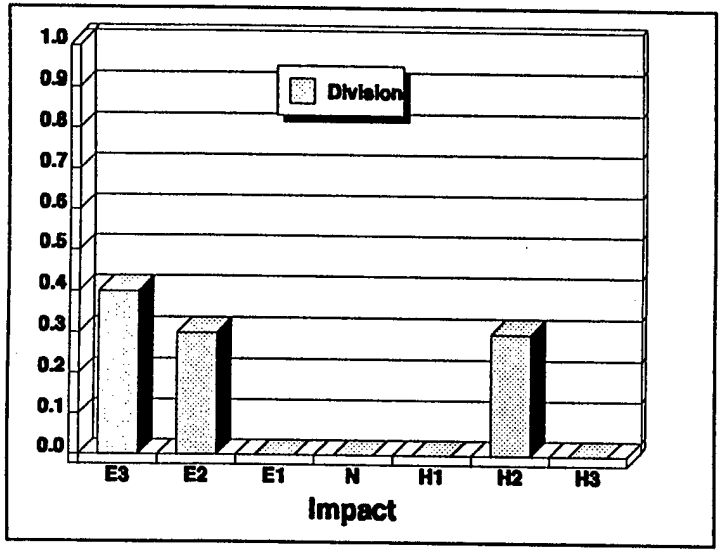
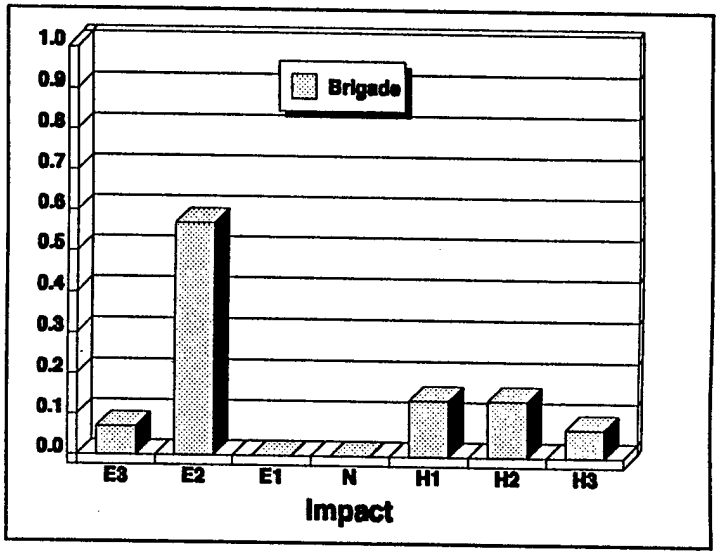
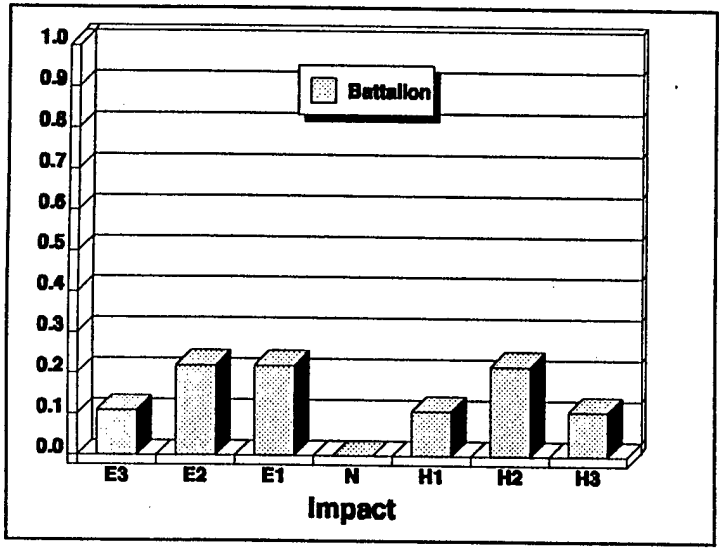


Figure D-2. Distribution of ratings of organizational structure.







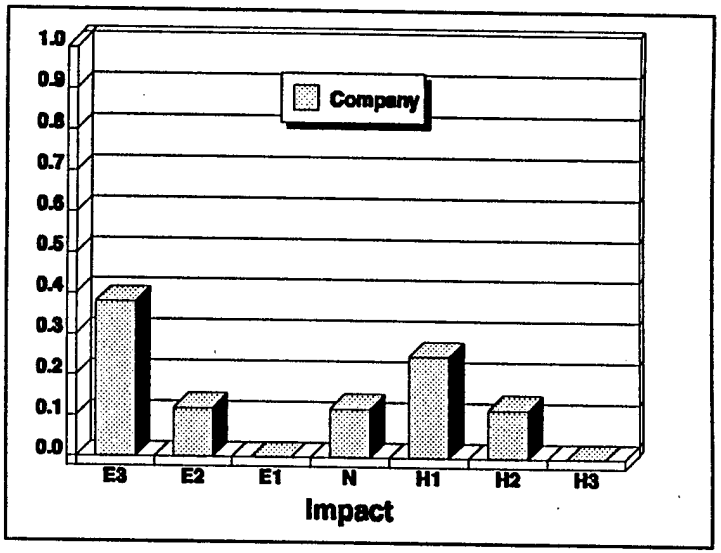
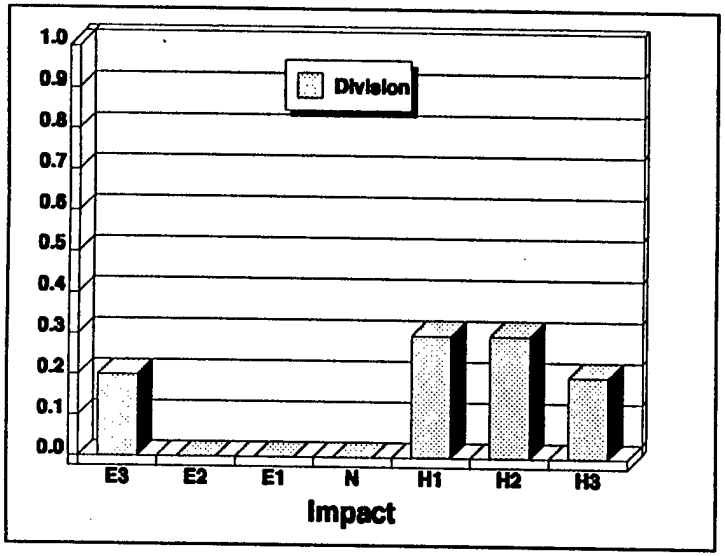
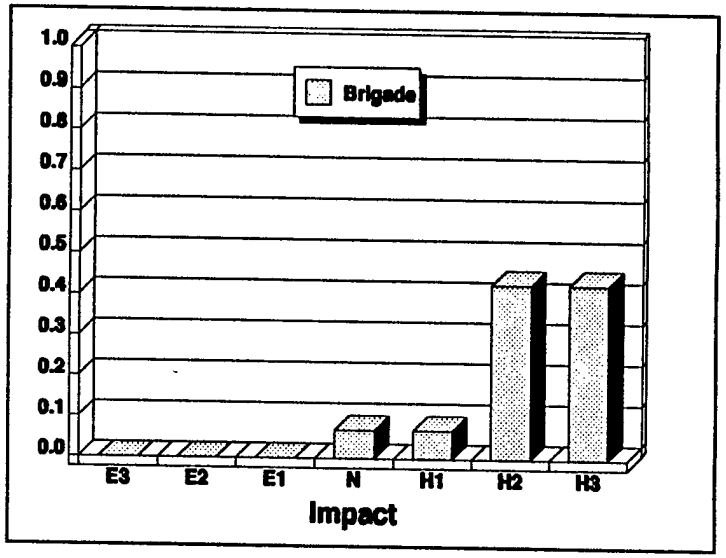
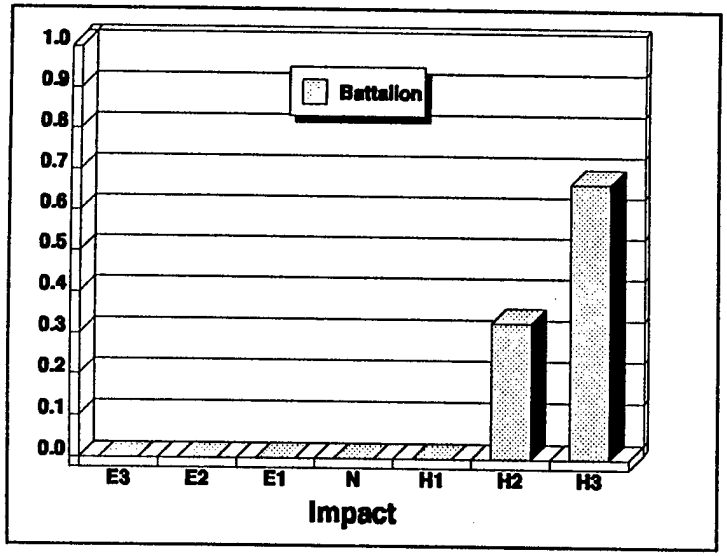


Figure D-3. Distribution of ratings of complexity of environment.







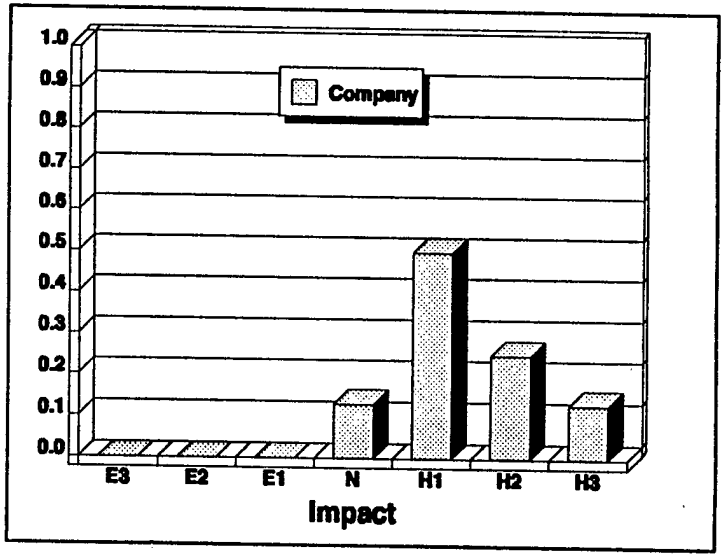
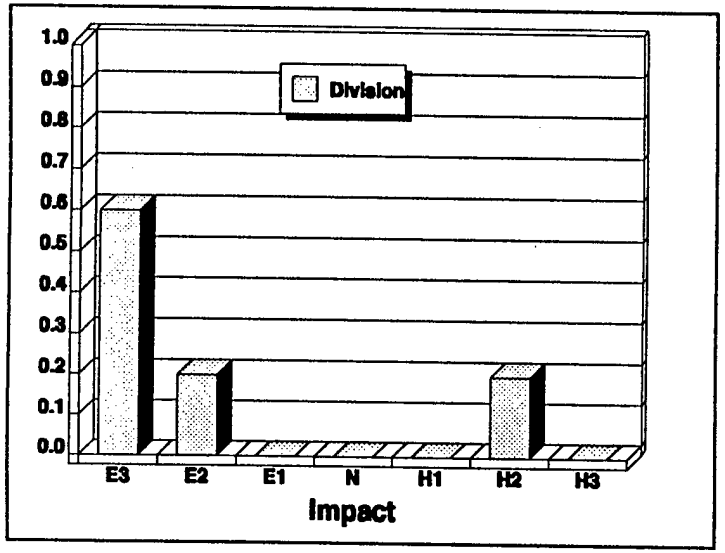
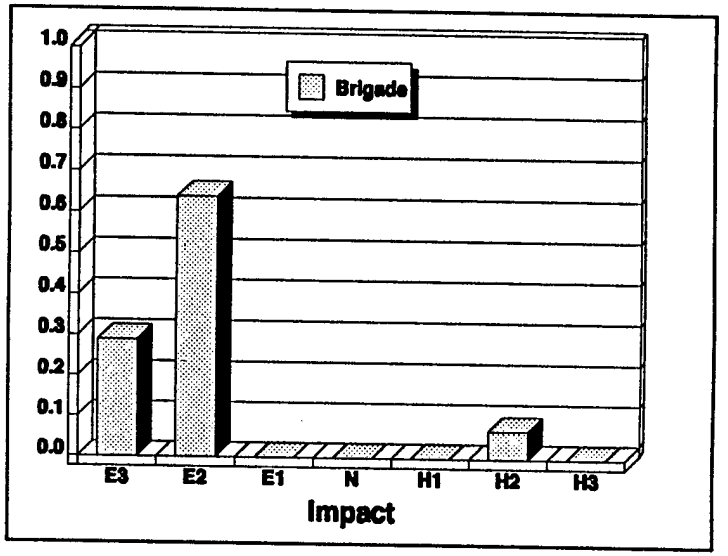
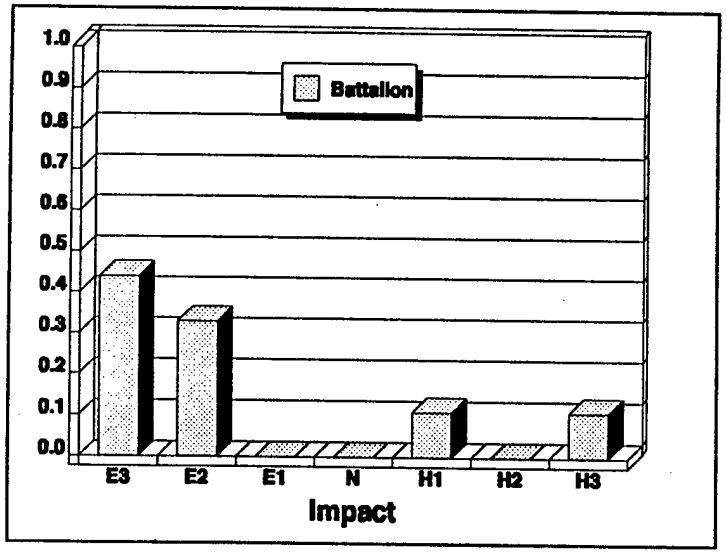


Figure D-4. Distribution of ratings of individual characteristics.







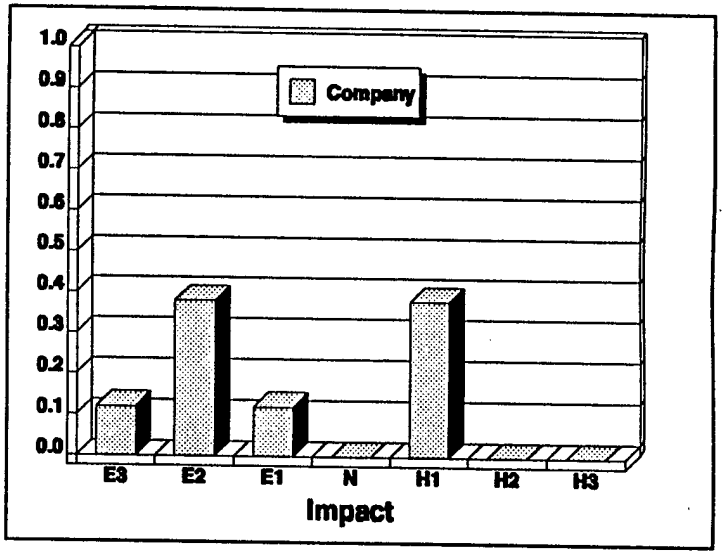
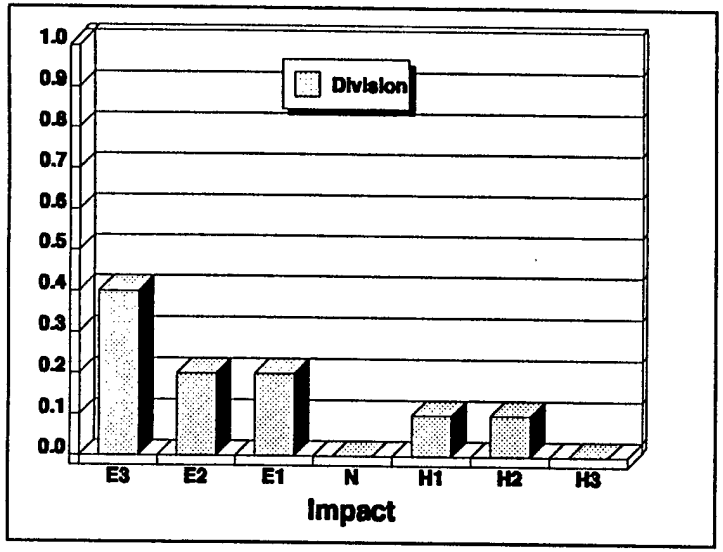
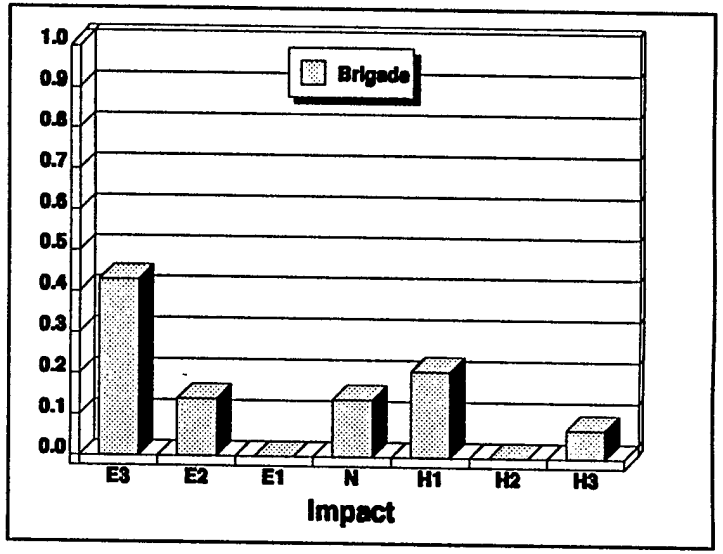
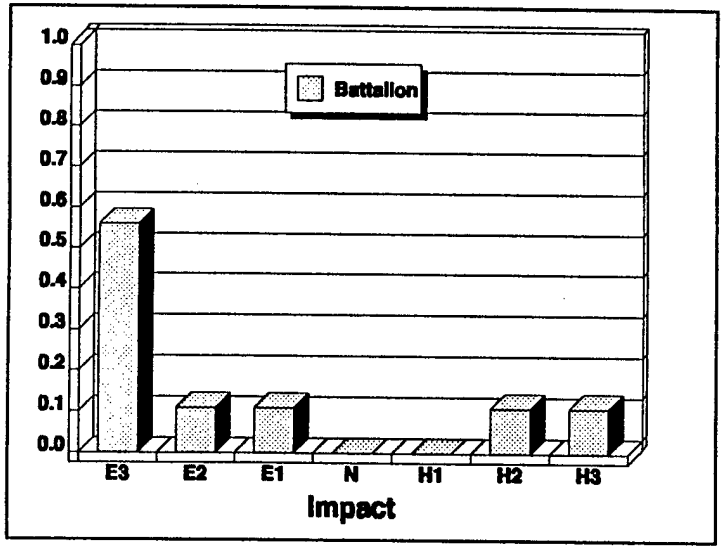


Figure D-5. Distribution of ratings of technology.







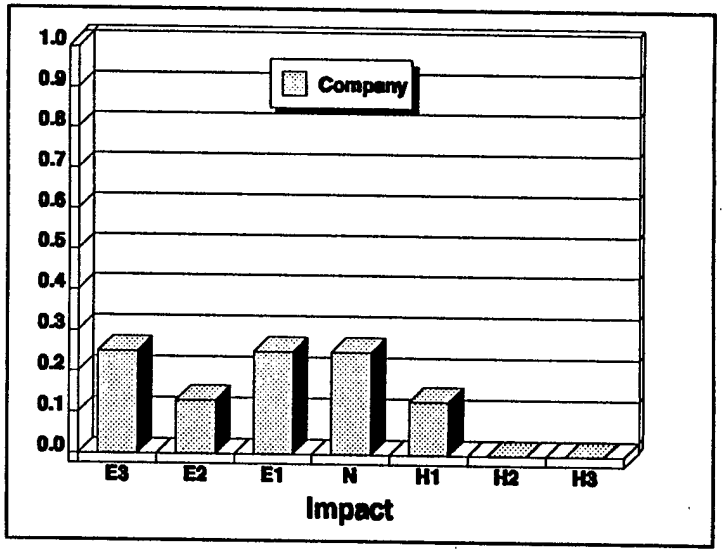
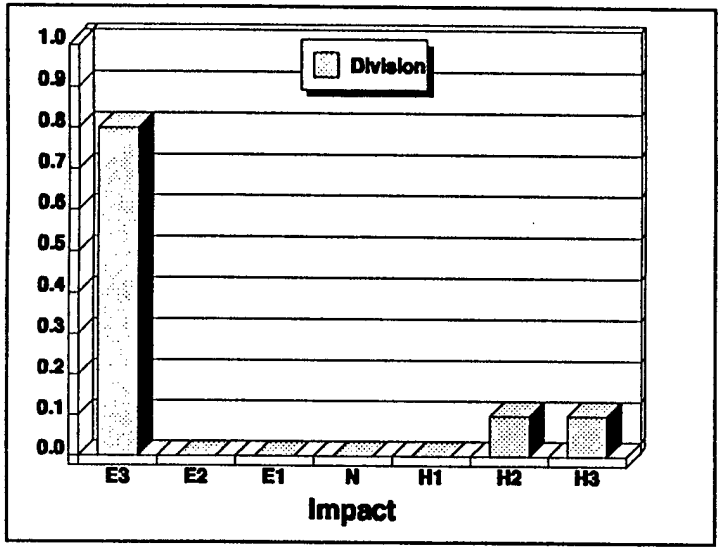
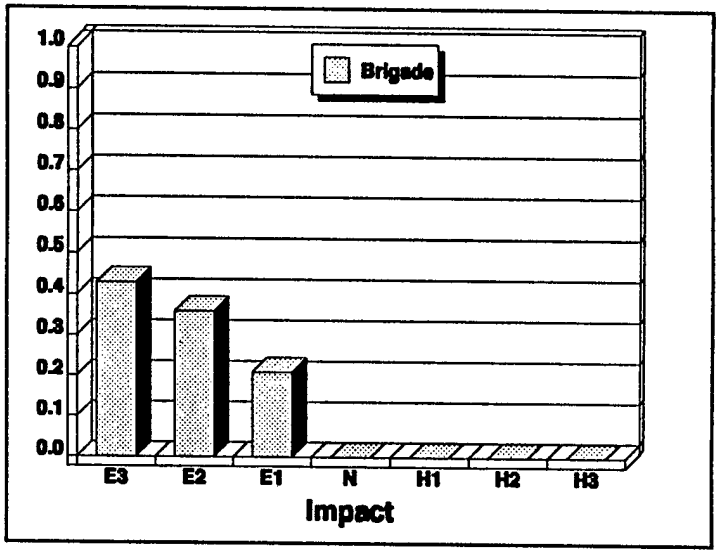
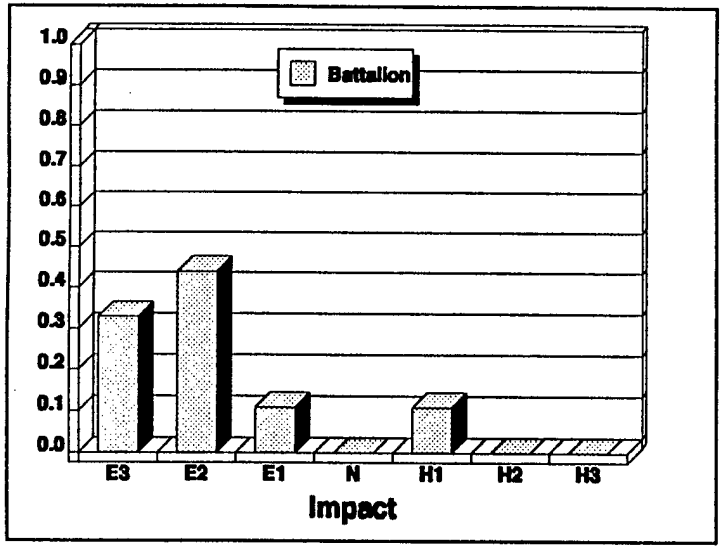


Figure D-6. Distribution of ratings of unit continuity.







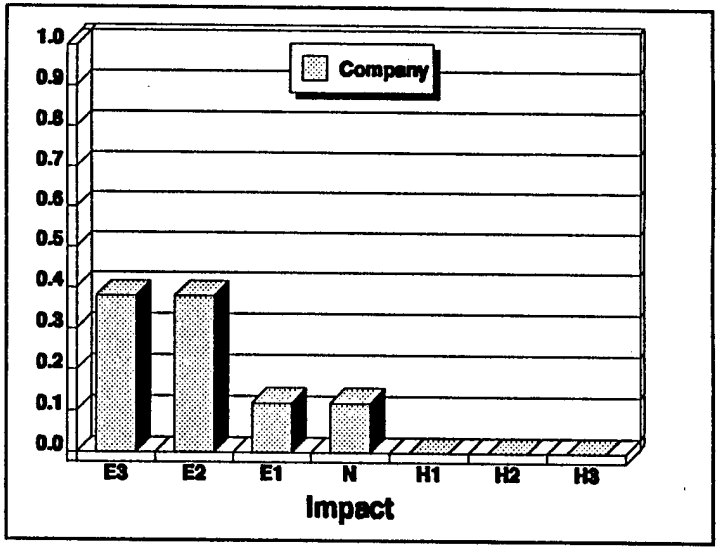
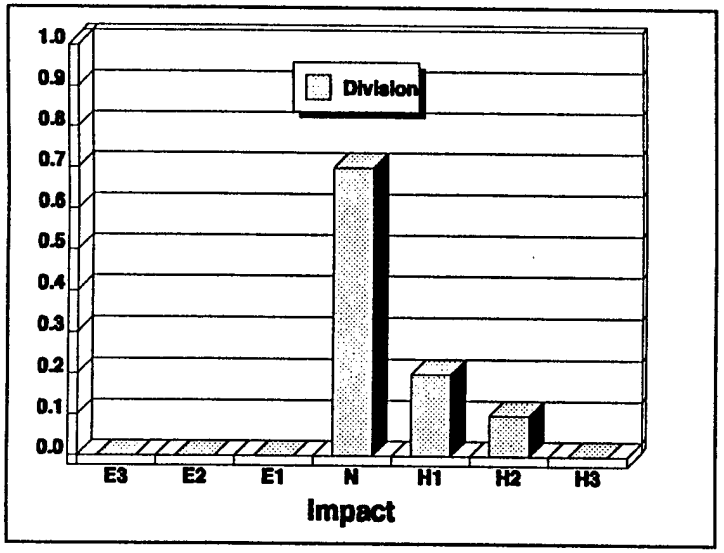
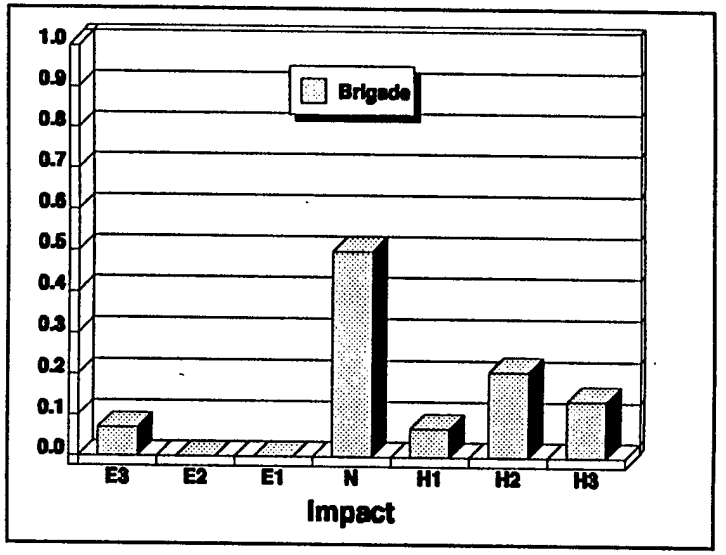
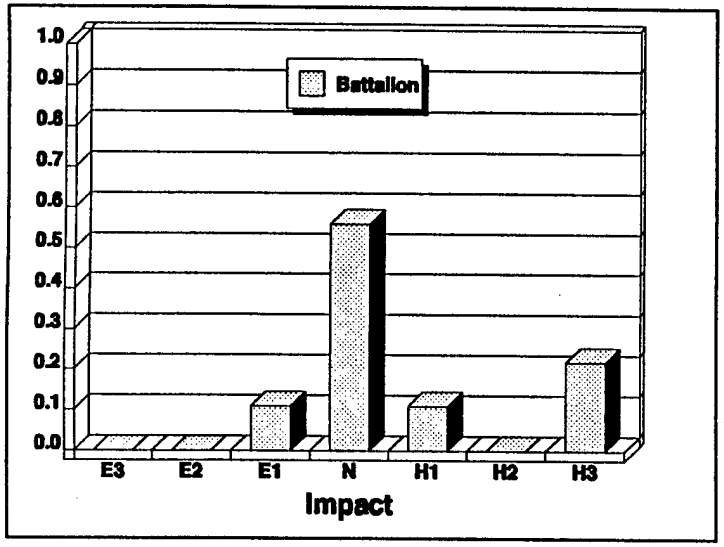
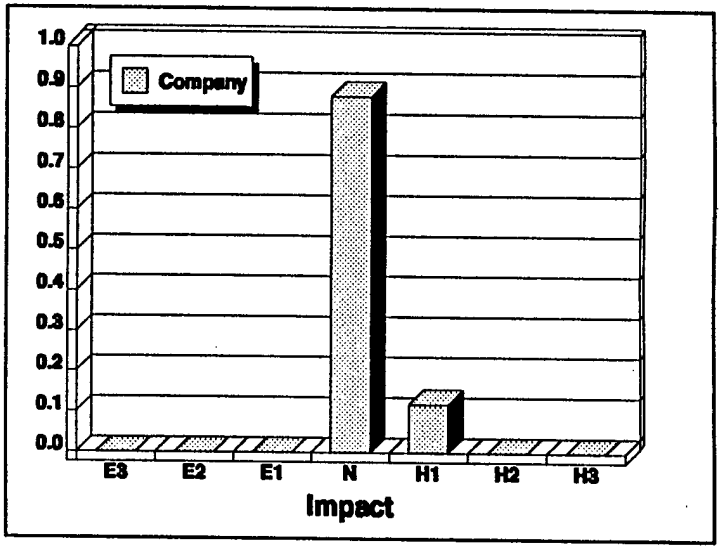


Figure D-7. Distribution of ratings of external organizations.









Appendix E

Comments from Command and Control Database for War Fighting Operations

The database included in this appendix consists of transcriptions of the comments made by 44 officers during interviews related to the command and control of war fighting operations. The officers interviewed were drawn from a corps headquarters or from one of three different divisions. They represent echelons from corps through company/battery, and duty positions of either commander or principal staff.

Project staff grouped comments made by the offices into one of nine categories based on an analysis of the contents of the comments. Two categories were used for comments that did not specifically relate to any of the seven factors proposed as impacting command and control. These comments were placed into one of two "overall" categories: Overall-Specific or Overall-General. Comments placed into the Overall-Specific category were judged by the project staff to be related specifically to the officers' judgments of the workload experienced during the operation and to the success of the operation. Comments placed into the Overall-General category were judged to be generally related to command and control functions, but not to the specific operation under consideration. The other seven categories were used, respectively, for comments that were related to each of the seven factors proposed as impacting the span of effective command and control: Task Characteristics, Organizational Structure, Complexity of Environment, Technology, Individual Characteristics, Unit Continuity, and External Environment.

Major sections of this appendix correspond to the nine categories of comments, in the order of their description as just provided. Comments presented in all the sections are identified by *Echelon*, *Unit*, *Mission*, *Position*, and *Rank* of the officer. Comments presented in the Overall-Specific category are also related to two index numbers. The first index number is the officer's ratings of the *Workload* he experienced during the mission (using a 10-point scale, where 1 means Low Workload and 10 means High Workload). The second index number is the officer's rating of the *Success* of the mission (using a 5-point scale, where 1 means Unsuccessful and 5 means Completely Successful). Comments presented in the sections for each of the seven factors are accompanied by the rating the officer assigned to the *Impact* of the identified specific factor on the difficulty of command and control (using the scale described on Page 14 of the main report).

Comments from Command and Control Database for War Fighting Operations

-- Overall, Specific --

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Command and Control - Overall.
Specific Remarks: Mission, Workload, and Success

Echelon	Unit	Mission	Position	Rank
Mission Remark				
Workload Index/Remark				
Success Index/Remark				
CORPS	III Corps	BCTP	DCG	BG

WFX Sustain the corps--logistics and rear area security.

9.0 Took every minute I had, but I wasn't stressed.

5.0 No area for improvement in WFX; doesn't happen often.

CORPS	III Corps	BCTP	Corps CDR	LTG

WFX Attack and mobile defense.

8.0

4.0 Much better than expected. Surprised OPFOR, but lost more than had expected.

CORPS	III Corps	BCTP	Corps CS	BG

WFX Mobile defense (in MAIN)

9.0 Pretty well worn out. Planning process for subsequent missions was the first function to unravel.

4.0 OPFOR couldn't find us; we destroyed 50%.

Command and Control - Overall.
Specific Remarks: Mission, Workload, and Success

Echelon	Unit	Mission	Position	Rank

Mission Remark
Workload Index/Remark
Success Index/Remark

DIV 82nd AB Div BCTP ADC-OPS BG

WFX Defense. Responsible for close fight, working out of DTAC.

9.0 20 hour days with 2-3 hour peaks, but could have handled more. Hardest decision was what to do with extensive information. Tries to resource (artillery and air) and let brigade commanders fight.

4.0

DIV 82nd AB Div BCTP Div G3 LTC

WFX Offense after forced entry. Ran Battle Management Cell out of DMAIN.

8.0 No spare time. Went from three hours' sleep to two. (On average, staff got five.)

4.0

DIV 82nd AB Div BCTP Div CS BG

WFX offense and defense. Synchronized forces out of DMAIN; largely through targeting board (doctrinal tool but unusual for chief of staff to run).

9.0

5.0

DIV 2nd Ar Div BCTP Div CDR MG

Corps WFX Deliberate Attack.

8.0 Had margin if things went wrong.

4.0

DIV 2nd Ar Div BCTP Div CS COL

WFX Attack.

7.0

4.0

DIV 2nd Ar Div BCTP Div ADC Support BG

WFX Direct LOG support of division. All aspects of DREAR mission.

10.0

3.0

DIV 2nd Ar Div BCTP Div G3 COL

WFX (Corps) Operate DMAIN during attack (follow and assume attack).

8.0

3.0

DIV III Corps BCTP COSCOM CDR BG

WFX Support corps in tactical operations.

9.0 About maxed out, especially staff.

4.0

DIV 1st Cav Div BCTP Div CDR MG

WFX Delay, defend, counterattack.

10.0

5.0

Command and Control - Overall.
Specific Remarks: Mission, Workload, and Success

Echelon	Unit	Mission	Position	Rank
Mission Remark				
Workload Index/Remark				
Success Index/Remark				
DIV	1st Cav Div	Elect. Horseman	Deputy G3	MAJ

CPX to assess experimental physical plant and automation for command post

10.0 Lacked sleep plan, not fully staffed.

3.0 Tactical piece generally successful on METL tasks. Technology success split: physical plant successful, automation piece uneven.

Command and Control - Overall.
Specific Remarks: Mission, Workload, and Success

Echelon	Unit	Mission	Position	Rank

Mission Remark
Workload Index/Remark
Success Index/Remark

BDE 2nd Ar Div NTC Brigade CDR COL

Contingency operations which included SOF integration along with Navy Air and USMC.

10.0
5.0

BDE 2nd Ar Div BCTP DIVARTY CDR COL

Movement to contact.

10.0
4.0

BDE 2nd Ar Div BCTP DISCOM CDR COL

Corps WFX Attack.

9.0
4.0

BDE 1st Cav Div BCTP Brigade CDR COL

(Interview was by Chief of Staff) WFX Recon, counterrecon, security, forward defense.

9.0
5.0

BDE 1st Cav Div NTC Brigade CDR COL

Brigade deliberate attack.

10.0
4.0

BDE 1st Cav Div BCTP DISCOM CDR COL

WFX Logistics support to division.

10.0
4.5

BDE 1st Cav Div BCTP DIVARTY CDR COL

WFX Attack

9.0
4.0

BDE 82nd AB Div JRTC Brigade CDR COL

Seize airfield, conduct NEO, prepare to defend.

9.0
4.0

BDE 82nd AB Div BCTP DIVARTY CDR COL

WFX Provide FA fires and fire support coordination during division operations (establish lodgement, deliberate attack, and defend).

7.0
5.0

Command and Control - Overall.
Specific Remarks: Mission, Workload, and Success

Echelon	Unit	Mission	Position	Rank
Mission Remark				
Workload Index/Remark				
Success Index/Remark				
BDE	82nd AB Div	BCTP	DISCOM CDR	COL

WFX Establish lodgement, deliberate attack, and defend.

9.0

4.0

Command and Control - Overall.
Specific Remarks: Mission, Workload, and Success

Echelon	Unit	Mission	Position	Rank
BDE	2nd Ar Div	DESERT STORM	Brigade CDR New	BG

Mission Remark
Brigade Counterattack.
Workload Index/Remark
8.0
Success Index/Remark
5.0

Command and Control - Overall.
Specific Remarks: Mission, Workload, and Success

Echelon	Unit	Mission	Position	Rank
Mission Remark				
Workload Index/Remark				
Success Index/Remark				
BDE	82nd AB Div	BCTP	Brigade S3	MAJ

Defend from battle position (bn -) / screen division flank / defend in sector.

9.0 Employed every asset: fighting current; planning future.

3.0 13 vs. 1; couldn't hold forever.

BDE	2nd Ar Div	BCTP	Brigade S3	MAJ

Corps WFX Defend

7.0

3.0

BDE	1st Cav Div	NTC	Brigade S3	MAJ

Deliberate Attack

8.0

4.0

Command and Control - Overall.
Specific Remarks: Mission, Workload, and Success

Echelon Unit Mission Position Rank
Mission Remark
Workload Index/Remark
Success Index/Remark

CO 82nd AB Div JRTC FA Btry CDR CPT

Establish a firebase, defend against Level I, II threat.

6.0 Once wired up and dug in, OPFOR ignored (easier to attack BSA).

4.0

CO 82nd AB Div JRTC Supt CO CPT

Provide DS maintance and Class IX support to battalion TF during LIC.

8.0 Paced selves early.

4.5 Indicated 4.5 for success.

CO 82nd AB Div JRTC Manvr CO CPT

Seize arifield, transition to defense.

10.0 Maxed out. Meeting at battalion conflicted with requirements at company.

4.0

CO 2nd Ar Div BCTP FA Btry CDR CPT

Corps WFX DS brigades and battalions.

7.0

4.0 Successful counterfire; less successful with communication (TACFIRE).

CO 2nd Ar Div NTC MED SUPT CO CDR CPT

Medical support to offensive operation.

7.0

3.5 NCOs rose to occasion and made mission a success.

CO 1st Cav Div NTC Maint Co CDR CPT

Provide maintenance throughout rotation.

8.0

4.0

CO 1st Cav Div NTC FA Btry CDR CPT

Deliberate attack (last mission).

7.0

4.5

CO 1st Cav Div NTC Maneuver Co CDR CPT

Deliberate attack.

9.0

4.0

Comments from Command and Control Database for War Fighting Operations

-- Overall, General --

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Command and Control - Overall.

General Comments.

Echelon	Unit	Mission	Position	Rank
CORPS	III Corps	BCTP	DCG	BG

1. Rear is still in Neanderthal age of technology. State of the art tools are available but we do not have them. For example, we need GPS for MP vehicles and lead truck in convoys. Also, UPS can track packages, why can't we tell where a requisitioned part is?

2. ALO system does not make sense: ALO 1 division is supported by an MI battalion that is at ALO 3; MI can't possibly keep up with that level of resources.

Echelon	Unit	Mission	Position	Rank
CORPS	III Corps	BCTP	Corps CDR	LTG

1. A disciplined, trained combat organization can handle wide range of missions.

2. Several adjustments can be made to division structure without devastating effects on warfighting capability. Would prefer not to do any of them, but if Army must reduce, these options are candidates:

(a) Strip Air Defense from division. Air threat not credible--spread some Stingers around, put in an extra guy in cav track. Real threat is anti-ballistic missile--develop Patriot AD brigade.

(b) Replace DISCOM with ADC (S) and small staff. Move MSB into corps, they become Corps Support Groups.

(c) Pull MI Bn up to corps. Line of sight items do not contribute--can't keep up with force projection army (only useful for big pitched battles that no one can afford). Beef G2 up, put out common ground station that works on move to brigades. Save a battalion's worth of structure.

3. Put scouts back into brigade; need brigade reconnaissance. Put in lightweight vehicle with lots of optics. Use scouts as sensors with link to FOGM.

4. Brigade would be three maneuver battalions, engineer battalion, FSB, and FA battalion. Would require selfless DISCOM and DIVARTY commanders--realize their people's first loyalty is to brigade commander. Add MLRS battalion rather than battery. Keep DIVARTY (for TOC), but could do without Engineer. Not making mini-divisions; strip out most of division staff.

5. We have made mistakes in how we develop systems. Product developer is not really beholden to user--PM has all the money and all the authority. Tend to develop in stovepipe, without integrating horizontally; systems don't talk to one another. Destroys credibility of technology. Get products into soldiers' hands earlier in the development cycle to make practical (e.g., IVIS).

6. Could not skip any echelons from corps down. Could use smaller staffs; start reduction at corps (CPTs can do COL staff work). Functional battle

Command and Control - Overall.

General Comments.

Echelon	Unit	Mission	Position	Rank

command systems that work easily will help reduce number of personnel.

7. Commanders cannot skip levels in sequence of assignments worked to insure all are comfortable with his intent.

Echelon	Unit	Mission	Position	Rank
CORPS	III Corps	BCTP	Corps CS	BG

1. Have to get beyond stickers on map; need flat screen projection device we can update via computer, with real time intel.

2. Division is over-structured: not sure what Main Support Battalion provides, keep some functions; AVN brigade over-structured (but short on mechanics); redundancy in MI--division could get processed information from corps. Could examine ERI.

3. Levels to compress are those above corps: e.g., CONUSAs, AMC, USAREUR.

4. Could redesign division, cut down 2-3,000 people; but must maintain killing systems.

5. OOTW easy to train for if units have basic warfighting skills and discipline. E.g., in Desert Storm, fighting stopped with immediate transition to humanitarian relief. NCO corps is the key.

Command and Control - Overall.

General Comments.

Echelon	Unit	Mission	Position	Rank
DIV	82nd AB Div	BCTP	ADC-OPS	BG

Priority for augmentation to DTAC in event of JTF:
1. If receive special operations forces, need a representative in DTAC.
2. Augment G2 with someone tied to national intelligence systems.

Echelon	Unit	Mission	Position	Rank
DIV	82nd AB Div	BCTP	Div G3	LTC

Priority for augmentation in event of JTF:
1. Need special operations expertise.
2. Need to be sure Air Force fills TALO with person who has transport expertise (vice fighter pilots).

Echelon	Unit	Mission	Position	Rank
DIV	82nd AB Div	BCTP	Div CS	BG

1. BCTP is a marvelous exercise--forces use of combined arms, breaks down fiefdoms.

2. Doctrinal four CP not resourced. Have limited capability to staff two (DMAIN and DTAC) 24 hours a day.

Echelon	Unit	Mission	Position	Rank
DIV	2nd Ar Div	BCTP	Div CDR	MG

1. Split time between MAIN and TAC CPs. Could have controlled MAIN and REAR from TAC, but believes presence in MAIN will be required for extended conflicts. (Suspects that most commanders who had experience in the Gulf will try to be forward at all times--with a small CP, constantly moving, with commo to support assets.)

2. Opposes replacing DISCOM with ADC(S): the more smart people who are involved with logistics, the better; few ADC(S) have support background (they learn quickly, but DISCOM commander teaches them).

3. "Crosstalk" capability is essential to C2 so it isn't necessary for commander to repeat himself.

Echelon	Unit	Mission	Position	Rank
DIV	2nd Ar Div	BCTP	Div CS	COL
DIV	2nd Ar Div	BCTP	Div ADC Support	BG
DIV	2nd Ar Div	BCTP	Div G3	COL
DIV	III Corps	BCTP	COSCOM CDR	BG

1. Need to develop capability for digitized CSS overlay. CSS overlay is essential and COSCOM is not currently resourced to produce one. In Desert Storm, developed for 7th Corps using Harvard Graphics.

Command and Control - Overall.

General Comments.

Echelon	Unit	Mission	Position	Rank

2. Logistical play during BCTP gives false picture of the importance of logistics management, especially requirements to reorganize. Logistics constraints do not drive warfighters to their knees; they are "magically" reconstructed.

3. It is very difficult to train RC: dollars do not allow; no access to MCS or BCTP (prior to WFX); geographically rather than functionally aligned.

DIV	1st Cav Div	BCTP	Div CDR	MG

Combined arms battalion is "good place to start" any restructuring of division. Also favors 3 tank platoon (without reduction in number of tanks). Otherwise, favors status quo.

Need to retain MI Battalion (rather than company) in division because need battalion commander's maturity to deal with large scale organization filled with colonels (CPT "can't breech rank structure").

Division is a combat multiplier. Separate brigades, for example, may make sense in compartmented terrain and when the scale of fighting is dispersed; but when the brigade fights a combined arms threat that has artillery, it needs fire support (especially MLRS) and aviation. Corps cannot support the brigade's FLOT battle because they are consumed with deep battle and logistical support.

Command and Control - Overall.

General Comments.

Echelon	Unit	Mission	Position	Rank
DIV	1st Cav Div	Elect. Horseman	Deputy G3	MAJ

Command and Control - Overall.

General Comments.

Echelon	Unit	Mission	Position	Rank
BDE	2nd Ar Div	NTC	Brigade CDR	COL

1. Technology sometimes imposes a burden: 10-12 computers at battalion require 2 to 3 generators.

2. Taskings for equipment and personnel should include information about mission. For example, a recent tasking was for 35 HMMVMV for Somalia. Upon questioning, it was learned that the mission was to be convoy escort; that mission has implications for configuration of the vehicles (e.g., communications equipment) and for organization of the element.

3. In joint operations, it is vital to base plans and coordination on events vice time.

BDE	2nd Ar Div	BCTP	DIVARTY CDR	COL
BDE	2nd Ar Div	BCTP	DISCOM CDR	COL
BDE	1st Cav Div	BCTP	Brigade CDR	COL
BDE	1st Cav Div	NTC	Brigade CDR	COL
BDE	1st Cav Div	BCTP	DISCOM CDR	COL
BDE	1st Cav Div	BCTP	DIVARTY CDR	COL
BDE	82nd AB Div	JRTC	Brigade CDR	COL
BDE	82nd AB Div	BCTP	DIVARTY CDR	COL
BDE	82nd AB Div	BCTP	DISCOM CDR	COL

BCTP is the best money we spend.

Command and Control - Overall.

General Comments.

Echelon	Unit	Mission	Position	Rank
BDE	2nd Ar Div	DESERT STORM	Brigade CDR New	BG

Command and Control - Overall.

General Comments.

Echelon	Unit	Mission	Position	Rank
BN	82nd AB Div	JRTC	AB TF CDR	LTC
BN	82nd AB Div	JRTC	FA Bn CDR	LTC
BN	82nd AB Div	JRTC	FS Bn CDR	LTC

E2 Good interface with brigade and maintenance support team for the mechanized unit.

BN	2nd Ar Div	BCTP	FS Bn CDR	LTC
BN	2nd Ar Div	DESERT STORM	TF CDR	LTC
BN	2nd Ar Div	NTC	FA Bn CDR	LTC
BN	1st Cav Div	NTC	FS Bn CDR	LTC
BN	1st Cav Div	NTC	FA Bn CDR	LTC
BN	1st Cav Div	NTC	Armor TF CDR	LTC

Comments from Command and Control Database for War Fighting Operations

-- Task Characteristics --

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Echelon	Unit	Mission	Position	Rank
Factor		Impact		
Rationale				
DIV	82nd AB Div	BCTP	ADC-OPS	BG
Task Characteristics		E3		
Subordiate elements (down to brigade commanders) knew what to do. Had strong train-up (3 CPX).				
DIV	82nd AB Div	BCTP	Div G3	LTC
Task Characteristics		E2		
Brigade commanders and staff knew tasks and the intent. Plenty of time for planning; all BOS specialists had time to dig out requirements.				
DIV	82nd AB Div	BCTP	Div CS	BG
Task Characteristics		E3		
Procedures had become routine through intense train-up: 6 months spaced with time for recovery. Focussed on mastering 250 interactions. Major effort to understand complexities of foreseeable missions and tasks, and to develop standard approaches ("plays") for execution. There were no surprises.				
DIV	2nd Ar Div	BCTP	Div CDR	MG
Task Characteristics		E3		
Familiar and fundamental tasks. Had focussed on tasks during train-up.				
DIV	2nd Ar Div	BCTP	Div CS	COL
Task Characteristics		H2		
Had to coordinate with adjacent division and 3d ACR. Necessary to "use" another division's terrain.				
DIV	2nd Ar Div	BCTP	Div ADC Support	BG
Task Characteristics		E2		
Tasks were clearly defined. In many cases did not have to personally take/direct any action because people understood requirements.				
DIV	2nd Ar Div	BCTP	Div G3	COL
Task Characteristics		H2		
Had to depend on corps for "read" on the enemy (could be BCTP artificiality).				
DIV	III Corps	BCTP	COSCOM CDR	BG
Task Characteristics		E2		
Units focused on METL tasks which were generally well trained. Required tremendous amount of specialized knowledge. Managed coordination through log synch matrix (macro FEA)--developed mind set that enabled COSCOM to manage by exception. Ingrained understanding of intent, detailed planning by lower echelons, and management through war gaming and rock drills prior to WFX. Oriented on predicting resupply needs vice waiting for requirement. Actual situation as it evolved had been well anticipated. Worked hard to achieve situational awareness. Increased requirements increased difficulty of task.				
DIV	1st Cav Div	BCTP	Div CDR	MG
Task Characteristics		E3		
Bread and butter skills directly from division METL. Units had to coordinate, but were all collocated for the CPX.				
DIV	1st Cav Div	Elect. Horseman	Deputy G3	MAJ
Task Characteristics		N		
Straight forward school house scenario; did not make easier or harder.				

Echelon	Unit	Mission	Position	Rank
Factor Rationale		Impact		
BDE	82nd AB Div	JRTC	Brigade CDR	COL
Task Characteristics		E3		
Major METL mission; mission trained quarterly. Trained in field frequently.				
BDE	82nd AB Div	BCTP	DIVARTY CDR	COL
Task Characteristics		H2		
Difficult mission. Had to destroy unusually large numbers of company strong points.				
BDE	82nd AB Div	BCTP	DISCOM CDR	COL
Task Characteristics		H2		
Split operations require much coordination (amounts required were not clear). Variable levels of proficiency presented problems.				
BDE	2nd Ar Div	NTC	Brigade CDR	COL
Task Characteristics		H3		
Complex requirements: form and employ assault CP; in absence of division HQ, act as de facto corps forward (and as ARFOR) for some time. C2 of corps elements included SOF.				
BDE	2nd Ar Div	BCTP	DIVARTY CDR	COL
Task Characteristics		H1		
Complex fire support requirement: clearing agency for all fires within the zone (the division, an ACR, and corps assets).				
BDE	2nd Ar Div	BCTP	DISCOM CDR	COL
Task Characteristics		H3		
Support required extensive coordination up, down, and laterally.				
BDE	1st Cav Div	BCTP	Brigade CDR	COL
Task Characteristics		H1		
Identified traditional tasks, knew what to do within specific mission. Brigade had plenty of tools for those. Made harder by requirement to coordinate with corps for artillery when other units were in the area. Also, specified task to destroy all recon was not traditional, hard to develop scheme of maneuver for that.				
BDE	1st Cav Div	NTC	Brigade CDR	COL
Task Characteristics		H2		
Deliberate breech is a complex mission. Tough OPFOR.				
BDE	1st Cav Div	BCTP	DISCOM CDR	COL
Task Characteristics		H3		
Wide variety of specialized information is required by functional areas.				
BDE	1st Cav Div	BCTP	DIVARTY CDR	COL
Task Characteristics		E2		
Familiar mission, deal with it daily.				
BDE	2nd Ar Div	DESERT STORM	Brigade CDR New	BG
Task Characteristics		E2		
Able to focus on one mission; no competing demands for assets.				

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor Rationale			Impact	
BDE	82nd AB Div	BCTP	Brigade S3	MAJ
Task Characteristics			E3	
Tasks conflicting. Very complex: with limited mobility, screen 30 km flank plus defend a battalion size battle position all against 13 enemy regiments.				
BDE	2nd Ar Div	BCTP	Brigade S3	MAJ
Task Characteristics			H2	
BDE	1st Cav Div	NTC	Brigade S3	MAJ
Task Characteristics			H2	
Extensive coordination required in TOC and with units in the field.				

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor Rationale			Impact	
BN	82nd AB Div	JRTC	AB TF CDR	LTC
Task Characteristics			E2	

Airborne assault and airfield seizure are bread and butter missions; transition to defense less familiar and made overall mission more complicated.

BN	82nd AB Div	JRTC	FA Bn CDR	LTC
Task Characteristics			E1	

Practiced on tasks, but had not practiced coordination with adjacent bns--that part was harder.

BN	82nd AB Div	JRTC	FS Bn CDR	LTC
Task Characteristics			H1	

Familiar tasks. Maintaining a forward element while establishing/defending BSA is difficult. Support requirements not as intense as expected.

BN	2nd Ar Div	BCTP	FS Bn CDR	LTC
Task Characteristics			N	
BN	2nd Ar Div	DESERT STORM	TF CDR	LTC
Task Characteristics			H3	

Stakes were very high.

BN	2nd Ar Div	NTC	FA Bn CDR	LTC
Task Characteristics			H2	

Difficult mission--brigade attack at night through 2 passes. Had to plan, coordinate, and move battalion while supporting brigade.

BN	1st Cav Div	NTC	FS Bn CDR	LTC
Task Characteristics			H2	

Required a great deal of coordination among units, largely because of turbulence.

BN	1st Cav Div	NTC	FA Bn CDR	LTC
Task Characteristics			H3	

Complex tasks.

BN	1st Cav Div	NTC	Armor TF CDR	LTC
Task Characteristics			H1	

Mission required coordination with adjacent TF. Made easier by experience in previous missions (last mission in rotation--"on a roll").

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor Rationale			Impact	
CO	82nd AB Div	JRTC	FA Btry CDR	CPT
Task Characteristics			E1	
Threat situation unfamiliar but fairly easy because all assets were in close proximity (circle wagons).				
CO	82nd AB Div	JRTC	Supt CO	CPT
Task Characteristics			H1	
Had to defend against rear area threat while supporting brigade. In order to provide quick response, did not locate with BSA. Technique helped but made it more difficult to coordinate with BSA.				
CO	82nd AB Div	JRTC	Manvr CO	CPT
Task Characteristics			H1	
Familiar but hard tasks.				
CO	2nd Ar Div	BCTP	FA Btry CDR	CPT
Task Characteristics			H2	
CO	2nd Ar Div	NTC	MED SUPT CO CDR	CPT
Task Characteristics			H2	
On Day 1, 90 patients evacuated to Medical Co. Had to handle concurrent with occupation of site.				
CO	1st Cav Div	NTC	Maint Co CDR	CPT
Task Characteristics			N	
Moderate impact easier and harder. Easier: tasks were familiar (on METL). Harder: tasks required special knowledge and coordination.				
CO	1st Cav Div	NTC	FA Btry CDR	CPT
Task Characteristics			H1	
Late change to RSOP.				
CO	1st Cav Div	NTC	Maneuver Co CDR	CPT
Task Characteristics			E1	
Repetitive tasks, not complex.				

Comments from Command and Control Database for War Fighting Operations

-- Organizational Structure --

Echelon	Unit	Mission	Position	Rank
Factor		Impact		
Rationale				
DIV	82nd AB Div	BCTP	ADC-OPS	BG
Organizational Structure		E2		

Controlled 6 major maneuver elements. Infantry brigades were task organized for defense, with engineer assets. Stable group of key staff during train-up. "Back of tent" less experienced (e.g.'Chem NCO'). In retrospect, would have preferred for SOCCE to be in DTAC (vice DMAIN).

DIV	82nd AB Div	BCTP	Div G3	LTC
Organizational Structure		H2		

Plenty of people in DMAIN to do job, but not much depth of experience: Chief or G3 had to be present to be sure people were looking ahead. Did not think through the piece for the DREAR: as a result, spent too much time "patching up." DREAR is not manned for IPB and generally lacks talent of DTAC and DMAIN.

DIV	82nd AB Div	BCTP	Div CS	BG
Organizational Structure		E3		

Typical structure except for SOC-CE, SOF filled a void by providing information from mountainous area. Had clear responsibility by battle phase for DTAC, DMAIN, and DREAR. Chief of Staff ran targeting board for planning and directing execution.

DIV	2nd Ar Div	BCTP	Div CDR	MG
Organizational Structure		E3		

All commanders comfortable with the structure for peace and war.

DIV	2nd Ar Div	BCTP	Div CS	COL
Organizational Structure		E2		

Used standard heavy division structure. CG allows organizational structure to work (e.g., lets TAC CP fight).

DIV	2nd Ar Div	BCTP	Div ADC Support	BG
Organizational Structure		H2		

Division rear not a unified group, does not train together. Tend to be staffed with people who can be spared.

DIV	2nd Ar Div	BCTP	Div G3	COL
Organizational Structure		E2		

Clear division of responsibilities between DTAC and DMAIN; DTAC fights close battle. Had only two brigades under command.

DIV	III Corps	BCTP	COSCOM CDR	BG
Organizational Structure		H2		

Worked with a large number of units: 12 battalions and about 59 company equivalents in active; treble for mobilization. Composition of COSCOM (3:1 reserve) complicated control; RC companies were well qualified. COSCOM staff was very capable; made control easier.

DIV	1st Cav Div	BCTP	Div CDR	MG
Organizational Structure		E3		

Used doctrinal division structure--no add-ons (such as SOF).

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor Rationale			Impact	
DIV	1st Cav Div	Elect. Horseman	Deputy G3	MAJ
Organizational Structure			E3	

CPX made structure easier: scripted corps; no additional units.

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
BDE	82nd AB Div	JRTC	Brigade CDR	COL
Organizational Structure			E2	
Habitual task organization. Impact reduced by unfamiliarity with new personnel: SOCCE, PSYOPS, CA, ANGLICO.				
BDE	82nd AB Div	BCTP	DIVARTY CDR	COL
Organizational Structure			H1	
DS battalions were used to their mission, but reinforcing FA brigades did not understand doctrine. Solid organization in DIVARTY, but would reinforce with two captains in S-3 shop.				
BDE	82nd AB Div	BCTP	DISCOM CDR	COL
Organizational Structure			H1	
Large number of corps units.				
BDE	2nd Ar Div	NTC	Brigade CDR	COL
Organizational Structure			H2	
Junior grade CPT as SF liaison; coordination with SOF was faulty: e.g., insertion of SF with helicopters did not go well and could have been disastrous (potential for loss of life) due to lack of coordination.				
BDE	2nd Ar Div	BCTP	DIVARTY CDR	COL
Organizational Structure			E2	
Used separate artillery brigade HQ to coordinate counterfire, a mission in which they were trained. Added 3 nets in DTAC and three levels of MSE to clear requests for fire.				
BDE	2nd Ar Div	BCTP	DISCOM CDR	COL
Organizational Structure			E2	
BDE	1st Cav Div	BCTP	Brigade CDR	COL
Organizational Structure			H2	
High number of units to control. Coordinating fire complicated by higher echelon units in AO.				
BDE	1st Cav Div	NTC	Brigade CDR	COL
Organizational Structure			E2	
Fewer units than usual (short a battalion).				
BDE	1st Cav Div	BCTP	DISCOM CDR	COL
Organizational Structure			E2	
Multi-functional structure of DISCOM enabled commander to deal with just one person at each supported brigade.				
BDE	1st Cav Div	BCTP	DIVARTY CDR	COL
Organizational Structure			E2	
Good structure for staff (positive); but got pieces of corps artillery units chopped at various times. Link up and coordination were hard.				
BDE	2nd Ar Div	DESERT STORM	Brigade CDR New	BG
Organizational Structure			E3	
Had a high level of teamwork.				

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor Rationale			Impact	
BDE	82nd AB Div	BCTP	Brigade S3	MAJ
Organizational Structure			E2	
Fewer task forces than normal (2 rather than 3 TF); chopped one TF to division.				
BDE	2nd Ar Div	BCTP	Brigade S3	MAJ
Organizational Structure			H3	
Put under control of Corps at one point. Not clear whether OPCON or attached.				
BDE	1st Cav Div	NTC	Brigade S3	MAJ
Organizational Structure			E2	
Benefitted from division assets: intel, STAR, COLT, UH60.				

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor		Impact		
Rationale				
BN	82nd AB Div	JRTC	AB TF CDR	LTC
Organizational Structure		H2		

Picked up rifle co (-) from sister TF; CO was new with new S1, S2, S3, and XO within 2 months. Had to restructure assault because of late changes to airlift.

BN	82nd AB Div	JRTC	FA Bn CDR	LTC
Organizational Structure		H2		

Did not know ANGLICO; task organization included a battery from a different battalion; and had a new Division FSE. DIVARTY was not in field as the higher artillery headquarters. Had to coordinate with a large number of units.

BN	82nd AB Div	JRTC	FS Bn CDR	LTC
Organizational Structure		H1		

Had just formed FSB. Supported a large number of units (12). Had new XO and SPO, plus was working with a new brigade S4.

BN	2nd Ar Div	BCTP	FS Bn CDR	LTC
Organizational Structure		H3		

Used to normal field trains; but had added responsibility for CSS units in the BSA.

BN	2nd Ar Div	DESERT STORM	TF CDR	LTC
Organizational Structure		E2		

Command team had been together for a long period of time with numerous CMTC and CPX missions. Were used to structure. Number of subordinate units (9 plus TOC and TAC) increased difficulty slightly.

BN	2nd Ar Div	NTC	FA Bn CDR	LTC
Organizational Structure		E2		

Commanders and staff had been together 6 months. On other hand, unit SOP was incomplete and not understood by all.

BN	1st Cav Div	NTC	FS Bn CDR	LTC
Organizational Structure		E1		

Had the right people and types of equipment, but hindered by turbulence.

BN	1st Cav Div	NTC	FA Bn CDR	LTC
Organizational Structure		E3		

Quality staff.

BN	1st Cav Div	NTC	Armor TF CDR	LTC
Organizational Structure		E1		

Slight impact harder: attacked 2 battalions abreast. Moderate impact easier: staff worked hard.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
CO	82nd AB Div	JRTC	FA Btry CDR	CPT
Organizational Structure			E3	
Leadership was top heavy for a six gun battery in one place.				
CO	82nd AB Div	JRTC	Supt CO	CPT
Organizational Structure			H1	
Diversity of functions within plts meant had to manage by section, dealing with 8 NCOICs.				
CO	82nd AB Div	JRTC	Manvr CO	CPT
Organizational Structure			H1	
Had 5 maneuver elements; got 2 external units (AT plt and tank plt) during planning phase; did not know when to expect them.				
CO	2nd Ar Div	BCTP	FA Btry CDR	CPT
Organizational Structure			E3	
Habitual relation with supported units.				
CO	2nd Ar Div	NTC	MED SUPT CO CDR	CPT
Organizational Structure			H2	
Provided medical support to "everyone" in AO; assets non-organic to brigade were in AO and required support.				
CO	1st Cav Div	NTC	Maint Co CDR	CPT
Organizational Structure			N	
Moderate impact easier and harder. Easier: had a good structure. Harder: large number of units to coordinate with.				
CO	1st Cav Div	NTC	FA Btry CDR	CPT
Organizational Structure			E3	
CO	1st Cav Div	NTC	Maneuver Co CDR	CPT
Organizational Structure			E2	
All platoons mounted (x-attached infantry platoon did not put out dismounts); maintained visual contact.				

Comments from Command and Control Database for War Fighting Operations

-- Complexity of Environment --

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor		Impact		
Rationale				
DIV	82nd AB Div	BCTP	ADC-OPS	BG
Complexity of Environment		H1		
Scenario straight forward but terrain tough (mountainous with extensive frontage). Generally accurate information, but enemy activity (and intent) in one sector were hidden for some time. Some ambiquity from simulation (air not represented well and artillery effects over-stated).				
DIV	82nd AB Div	BCTP	Div G3	LTC
Complexity of Environment		H2		
Did not get return expected from IPB: underestimated OPFOR ability to move/maneuver without detection.				
DIV	82nd AB Div	BCTP	Div CS	BG
Complexity of Environment		H3		
Thinking enemy forced adaptation.				
DIV	2nd Ar Div	BCTP	Div CDR	MG
Complexity of Environment		E3		
Simple environment. CPX deliberately takes friction out of operation to allow focus on honing procedures. Since only the corps and division CPs were in the field, it was easy to get with brigade commanders in Sim Center without extensive travel (were within 15 minutes).				
DIV	2nd Ar Div	BCTP	Div CS	COL
Complexity of Environment		H2		
Ambiguous situation. Dependent on corps for information on enemy.				
DIV	2nd Ar Div	BCTP	Div ADC Support	BG
Complexity of Environment		H2		
Ambiguities. Responsible for some support and security of non-divisional elements in the rear area.				
DIV	2nd Ar Div	BCTP	Div G3	COL
Complexity of Environment		H1		
Because of "follow and assume" mission, had no responsibility for deep battle; fewer options.				
DIV	III Corps	BCTP	COSCOM CDR	BG
Complexity of Environment		H3		
Coordinated information from many sources: about 60 people (besides staff) were involved in planning phase.				
DIV	1st Cav Div	BCTP	Div CDR	MG
Complexity of Environment		H1		
Ambiguity about how big a role corps would play.				
DIV	1st Cav Div	Elect. Horseman	Deputy G3	MAJ
Complexity of Environment		E3		
Ambiguity scripted out.				

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
BDE	82nd AB Div	JRTC	Brigade CDR	COL
Complexity of Environment			H3	
Plan changed: time to prepare defense decreased from 96 hours to 48. Received fewer aircraft for lift/assault aircraft than planned (decreased from 2 bn to 1).				
BDE	82nd AB Div	BCTP	DIVARTY CDR	COL
Complexity of Environment			H2	
Many missions. Unclear status of Class V.				
BDE	82nd AB Div	BCTP	DISCOM CDR	COL
Complexity of Environment			H3	
Did not know status of AF (lift) support. Did not receive resolution of issues, e.g. Class VIII and Class V (possibly a result of BCTP artificialities). Medical support requirements were stalled in Medical Bde.				
BDE	2nd Ar Div	NTC	Brigade CDR	COL
Complexity of Environment			H3	
Recon did not provide adequate information on enemy (required 80% knowledge, got maybe 10%). Patrols had to walk in over long distance; limited range (5-8 Km) of manpack radios resulted in inability to communicate information. As a result, brigade conducted 30 km deep attack with inadequate information on enemy.				
Distances increased difficulty of mission.				
BDE	2nd Ar Div	BCTP	DIVARTY CDR	COL
Complexity of Environment			H3	
Supported large number of units.				
BDE	2nd Ar Div	BCTP	DISCOM CDR	COL
Complexity of Environment			H1	
Desert environment complicated support.				
BDE	1st Cav Div	BCTP	Brigade CDR	COL
Complexity of Environment			H2	
During initial stages not clear who had control of area between border and brigade forces (e.g., SOF, UN, national police).				
BDE	1st Cav Div	NTC	Brigade CDR	COL
Complexity of Environment			H2	
NTC is difficult environment; tough OPFOR.				
BDE	1st Cav Div	BCTP	DISCOM CDR	COL
Complexity of Environment			H3	
Data to DISCOM is typically ambiguous. DISCOM requires a high volume of data.				
BDE	1st Cav Div	BCTP	DIVARTY CDR	COL
Complexity of Environment			N	
BDE	2nd Ar Div	DESERT STORM	Brigade CDR New	BG
Complexity of Environment			H3	
Ambiguities; was not clear what the rules were.				

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
BDE	82nd AB Div	BCTP	Brigade S3	MAJ
Complexity of Environment			H2	

Ambiguity made difficult: missions conflicted and were not clear. Large AO and large front for two battalion task forces; one TF had its mission prescribed by Division. Opposed 13 regiments.

BDE	2nd Ar Div	BCTP	Brigade S3	MAJ
Complexity of Environment			H2	

Too many unknown units in AO. Could not determine where logistical and artillery support came from ("plugs"). Did not know commo procedures (FM or MSE? Which FM net or MSE link? Who report to?).

BDE	1st Cav Div	NTC	Brigade S3	MAJ
Complexity of Environment			H2	

Time requirements to get from place to place force staff to split functions (plan/execute). Staff must be able to carry on in S3's absence.

Echelon	Unit	Mission	Position	Rank
Factor		Impact		
Rationale				
BN	82nd AB Div	JRTC	AB TF CDR	LTC
Complexity of Environment		H3		

Plan changed: time to prepare defense decreased from 96 hours to 48. Lift changed. Felt effects of sleep deprivation at start. Lacked good intel on enemy; ROE were not clear (e.g., uncertain about pre-assault fires); terrain was unfamiliar and analysis of terrain was not accurate (changed positioning of weapons).

BN	82nd AB Div	JRTC	FA Bn CDR	LTC
Complexity of Environment		H3		

Time constraints--Plan changed time to prepare defense decreased from 96 hours to 48, forced top-down planning for arty. First JRTC at Ft Polk: unfamiliar terrain and enemy. Restrictive ROE.

BN	82nd AB Div	JRTC	FS Bn CDR	LTC
Complexity of Environment		H2		

Plan changed time to prepare defense (48 hours instead of 96). Plan was redone. Unfamiliar terrain. Terrain forced separation of three nodes. Airflow was delayed. On plus side Bde S4 had role in developing new plan--good coordination between FSB and the brigade.

BN	2nd Ar Div	BCTP	FS Bn CDR	LTC
Complexity of Environment		H3		

Desert environment limits mobility for 5,000 gallon trucks and S&Ps.

BN	2nd Ar Div	DESERT STORM	TF CDR	LTC
Complexity of Environment		H3		

Night attack made identification of friend or foe more difficult. Had only sketchy information on enemy. Unfamiliar with terrain.

BN	2nd Ar Div	NTC	FA Bn CDR	LTC
Complexity of Environment		H2		

Not enough time for preparation. Significant ambiguity: lacked deep eyes (only 3 COLTs), so was not able to confirm enemy disposition. Given too much to handle.

BN	1st Cav Div	NTC	FS Bn CDR	LTC
Complexity of Environment		H3		

Distance makes support difficult. Very different from Germany.

BN	1st Cav Div	NTC	FA Bn CDR	LTC
Complexity of Environment		H3		

NTC is hostile environment: terrain and OPFOR.

BN	1st Cav Div	NTC	Armor TF CDR	LTC
Complexity of Environment		H2		

Heat, distance (time to travel), and meetings made control difficult.

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
CO	82nd AB Div	JRTC	FA Btry CDR	CPT
Complexity of Environment			H1	
Heat had impact. Inherent chaos / uncertainties of an air-drop. Since OPFOR was also unfamiliar with terrain (first rotation at Ft Polk), unit was unscathed.				
CO	82nd AB Div	JRTC	Supt CO	CPT
Complexity of Environment			H1	
Enemy activity plus heat. Effect of heat exacerbated by MOPP4 for 5 hours--made control difficult.				
CO	82nd AB Div	JRTC	Manvr CO	CPT
Complexity of Environment			H3	
Heat and unfamiliar terrain. XO was killed. Last minute changes to plan.				
CO	2nd Ar Div	BCTP	FA Btry CDR	CPT
Complexity of Environment			N	
CO	2nd Ar Div	NTC	MED SUPT CO CDR	CPT
Complexity of Environment			H1	
Had to be proactive to arrange support.				
CO	1st Cav Div	NTC	Maint Co CDR	CPT
Complexity of Environment			H2	
Ambiguity about who was in rear.				
CO	1st Cav Div	NTC	FA Btry CDR	CPT
Complexity of Environment			H2	
Severe time constraints; unfamiliar with terrain. Difficult transition from live fire to force on force.				
CO	1st Cav Div	NTC	Maneuver Co CDR	CPT
Complexity of Environment			H1	
Ambiguity about location of obstacle belt. Lacked smoke.				

Comments from Command and Control Database for War Fighting Operations

-- Technology --

Echelon	Unit	Mission	Position	Rank
Factor		Impact		
Rationale				
DIV	82nd AB Div	BCTP	ADC-OPS	BG
Technology		E3		

Communications systems worked. Radar was especially valuable--part of value may be attributable to artificialities in BCTP.

DIV	82nd AB Div	BCTP	Div G3	LTC
Technology		E3		

Put the pieces together: were on board with MSE and SINCGARS--tremendous communication success. ASAS had huge impact.

DIV	82nd AB Div	BCTP	Div CS	BG
Technology		E2		

MSE and ASAS were essential ("most comprehensive/timely picture I could imagine"). Nice to have Saber (earpiece radios) and TACLAN. Rented a facsimile transmitter that was capable of changing scales and transmitting wide (36 inch) documents.

DIV	2nd Ar Div	BCTP	Div CDR	MG
Technology		H1		

All the high tech C3I means are a source of frustration now. On one hand they do many things to simplify and improve C2: Warrior tied to ASAS lets leaders share a common picture of the battlefield (essential to C2). On the other hand, MCS is woefully out-dated, cumbersome, and hard to train on. As a result, we work around it. Frustration results from the slowness of implementing state of the art technology. AITCS is needed.

DIV	2nd Ar Div	BCTP	Div CS	COL
Technology		E2		

Good commo equipment and Signal Bn makes it work. Warrior is on the edge of being good.

DIV	2nd Ar Div	BCTP	Div ADC Support	BG
Technology		E1		

MSE and MCS useful (especially getting commanders SITREP from MCS).

DIV	2nd Ar Div	BCTP	Div G3	COL
Technology		E1		

MSE and MCS useful, but technology does not benefit rear as much as it has the TAC.

DIV	III Corps	BCTP	COSCOM CDR	BG
Technology		E3		

Communication and MCS enabled feedback system to monitor status. Had to overcome (some) staff lack of familiarity with some of the equipment.

DIV	1st Cav Div	BCTP	Div CDR	MG
Technology		E3		

ASAS and UAV strip ambiguity. UAV "gobbles" unprotected artillery in desert (effectiveness probably extends beyond simulation). ASAS useful (printed screen to review), but must realize intel information is 2 to 4 hours old.

DIV	1st Cav Div	Elect. Horseman	Deputy G3	MAJ
Technology		H2		

Systems were immature; lost some data (LAN not working). Tried to maintain two information management systems for redundancy (posted map board concurrently with electronic map); added stress and made C2 less effective.

BDE 82nd AB Div JRTC Brigade CDR COL

Technology H1

No options when systems fail (needed runners). Generators are magnet for OPFOR. TACFIRE blocked out FASCAM because of erroneous LRS. Warfighting pieces were good (REMBASS, Q36).

BDE 82nd AB Div BCTP DIVARTY CDR COL

Technology E3

Light TAC FIRE and other devices are valuable. ASAS gives information immediately into TAC FIRE.

BDE 82nd AB Div BCTP DISCOM CDR COL

Technology E3

MSE, faxes, TACLAN resulted in effective information flow.

BDE 2nd Ar Div NTC Brigade CDR COL

Technology E2

Overall, technology made it easier to transfer information; but there were problems: (a) CSSCS system does not "talk" to MCS and TACCS; (b) Intel downlink from Division ASAS produced copious information but it was unscreened. There was no good way to identify significant information. (c) Use of brigade HQ as point to enter information from TF into CSSCS isn't realistic. There has been no increase to personnel authorized in Bde S4 section and there are "tons" of data to be entered.

BDE 2nd Ar Div BCTP DIVARTY CDR COL

Technology E2

Dedicated (diverted) CPTs (on 12 hour shifts) to screen intel information flow from ASAS for important information.

BDE 2nd Ar Div BCTP DISCOM CDR COL

Technology H3

Too much reliance on automation; when it goes down it is necessary to transition to manual.

BDE 1st Cav Div BCTP Brigade CDR COL

Technology E3

Had a lot of assets; technology gave a lot of capability. Commander needs to position technology assets (e.g., UAV, night vision devices). Mistake to give UAV to S2/G2.

BDE 1st Cav Div NTC Brigade CDR COL

Technology H1

MSE/communications made C2 easier. MCS made C2 harder

BDE 1st Cav Div BCTP DISCOM CDR COL

Technology N

Easier because of capability to communicate better, remove ambiguities, and transmit large volume of data across large distances. Harder because technology requires a lot of skill and knowledge and time to keep systems functional.

BDE 1st Cav Div BCTP DIVARTY CDR COL

Technology N

MSE and TAC FIRE really helped. Harder because it is harder to get critical information from the mass of available data. Also get more demands for information from above; while answering requests for data (e.g., how many

radar acquisitions) not processing data.

BDE 82nd AB Div BCTP Brigade S3 MAJ
Technology E3
MSE and capability to send orders through E-mail were very helpful.

BDE 2nd Ar Div BCTP Brigade S3 MAJ
Technology H1
S2 Warrior terminal displaced S2 MCS; therefore S2 lost access to terrain data base. Also requires another operator; usually didn't work (not field durable). MSE is step backward, since people (staff officers, O&I net) could not eavesdrop. Range of FM radios inadequate for direct contact by Corps.

BDE 1st Cav Div NTC Brigade S3 MAJ
Technology E3
Took most of own stuff. Had a lot of night vision devices. Benefitted from telephone.

BDE 2nd Ar Div DESERT STORM Brigade CDR New BG
Technology E3
Good communications (especially TAC SAT FAX); high technology weapons; and GPS.

Echelon	Unit	Mission	Position	Rank
Factor		Impact		
Rationale				
BN	82nd AB Div	JRTC	AB TF CDR	LTC
Technology		E3		
Communication capability (SINCGARS) and night vision devices were great aids.				
BN	82nd AB Div	JRTC	FA Bn CDR	LTC
Technology		E2		
Commo, especially MSE worked well, but did not have enough fo Bn FSOs. Relied too much on MSE (can't monitor). Radar helpful.				
BN	82nd AB Div	JRTC	FS Bn CDR	LTC
Technology		E3		
Communications enabled coord with brigade and FSB's 3 locations. Small radios facilitated communication within FSB nodes.				
BN	2nd Ar Div	BCTP	FS Bn CDR	LTC
Technology		H3		
CSSCS is not linked to CBS. Information is entered at FSB, but is not pushed down to brigade units.				
BN	2nd Ar Div	DESERT STORM	TF CDR	LTC
Technology		E3		
Good FM communicatins. GPS helped. Had superior optics.				
BN	2nd Ar Div	NTC	FA Bn CDR	LTC
Technology		H2		
Long distance for FM radios, did not have sufficient retransmission capability. OR on TACFIRE was not satisfactory. MCS and MSE were not up or helpful.				
BN	1st Cav Div	NTC	FS Bn CDR	LTC
Technology		E3		
Were able to "blast" spare parts requests rather than rely on couriers.				
BN	1st Cav Div	NTC	FA Bn CDR	LTC
Technology		E3		
Benefitted from GPS and PADS survey.				
BN	1st Cav Div	NTC	Armor TF CDR	LTC
Technology		E1		
Strong impact easier: SINCGARS, M1A2, and, especially, IVIS contributed. Moderate impact harder: requires specialized training to keep systems functional.				

Echelon	Unit	Mission	Position	Rank
Factor		Impact		
Rationale				
CO	82nd AB Div	JRTC	FA Btry CDR	CPT
Technology		E1		
NVGs good. Resupply of batteries for manpack SINCGARS a problem. Need commo handset that is easier to use when wearing a helmet.				
CO	82nd AB Div	JRTC	Supt CO	CPT
Technology		E3		
NVGs helped defeat infiltrators. 126 radios in each section big help. Good MSE with bn. Because of SINCGARS, there was no jamming.				
CO	82nd AB Div	JRTC	Manvr CO	CPT
Technology		H2		
Manpack SINCGARS hard to operate. Radios were good but battery resupply was a problem. Terrain inhibits contact with bn. PRC 126 is fragile due to LIC environment and need to move on ground. Handsets are easily damaged.				
CO	2nd Ar Div	BCTP	FA Btry CDR	CPT
Technology		E1		
Normally use TACFIRE and MSE. Simulation was not realistic.				
CO	2nd Ar Div	NTC	MED SUPT CO CDR	CPT
Technology		N		
Communications (SINCGARS) big help: greatly improves ability to talk to supported units. Force modification to combat units makes much more difficult: Health Service Support assets are still in M113-series vehicles, it's hard to keep up with TF BFV in order to treat / evacuate them.				
CO	1st Cav Div	NTC	Maint Co CDR	CPT
Technology		E2		
Communication equipment helped.				
CO	1st Cav Div	NTC	FA Btry CDR	CPT
Technology		N		
Moderate impact easier and harder. Easier: SINCGARS and GPS. Harder: not used to equipment; and too many nets for SINCGARS.				
CO	1st Cav Div	NTC	Maneuver Co CDR	CPT
Technology		E3		
GPS, IVIS, SINCGARS very helpful. Still, took 4 hours to get "punched up," and still had to use manual systems to talk to engineer and CSS.				

Comments from Command and Control Database for War Fighting Operations

-- Individual Characteristics --

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
DIV	82nd AB Div	BCTP	ADC-OPS	BG
Leader Characteristics			E3	

Trained and experienced brigade commanders. Staffed DTAC with qualified and experienced staff officers. Staff improved as training before BCTP progressed. Extensive use of Battle Staff NCO Course paid off in positive impact of qualified Operations NCO's.

DIV	82nd AB Div	BCTP	Div G3	LTC
Leader Characteristics			E3	

High experience among command group; good team with chief of staff. Talented majors (e.g., 2 SAMS graduates in G-3), but because of overall lack of experience in DMAIN, G-3 was diverted from planning (preferred) to work on current operations at the "hub."

DIV	82nd AB Div	BCTP	Div CS	BG
Leader Characteristics			E3	

Senior leadership kept tone light. Train-up OPDs established technical skills. Also conducted staff specific training to cope with turnover. Forced issue on Battle Staff NCO Course, allowed officers to be battle captains.

DIV	2nd Ar Div	BCTP	Div CDR	MG
Leader Characteristics			E3	

Prefers high amount of face to face contact and cross-talk (within division and with other divisions). Corps emphasizes FM to facilitate cross talk and commo on the move. With MSE,stresses conference calls [preceded by huddle with ADC(M)]. Staff well trained; chief of staff an excellent teacher.

DIV	2nd Ar Div	BCTP	Div CS	COL
Leader Characteristics			E2	

Good team.

DIV	2nd Ar Div	BCTP	Div ADC Support	BG
Leader Characteristics			H2	

Players changed. Lacked attitude that their work was contributing to success.

DIV	2nd Ar Div	BCTP	Div G3	COL
Leader Characteristics			E3	

MAJs in intel, plans and operations showed initiative and common sense; G3 did not have to do their job or back track their decisions.

DIV	III Corps	BCTP	COSCOM CDR	BG
Leader Characteristics			H2	

Very difficult for RC battalion and group commanders to develop synchronization.

DIV	1st Cav Div	BCTP	Div CDR	MG
Leader Characteristics			E3	

Good subordinate skills.

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
DIV	1st Cav Div	Elect. Horseman	Deputy G3	MAJ
Leader Characteristics			E2	

Staff seasoned, experienced in WFX. Short two officers in operations section.

Echelon	Unit	Mission	Position	Rank
Factor		Impact		
Rationale				
BDE	82nd AB Div	JRTC	Brigade CDR	COL
Leader Characteristics		E2		
Young captains learn fast.				
BDE	82nd AB Div	BCTP	DIVARTY CDR	COL
Leader Characteristics		E3		
"Iron captains and majors" know doctrine/missions, especially Leavenworth graduates.				
BDE	82nd AB Div	BCTP	DISCOM CDR	COL
Leader Characteristics		E2		
Trained in all aspects--could operate on the fly. Staff is strength (prefer fewer if highly trained). Turbulence of key personnel is a major concern.				
BDE	2nd Ar Div	NTC	Brigade CDR	COL
Leader Characteristics		E3		
High quality across services. Get mission, put plan together, rehearse.				
BDE	2nd Ar Div	BCTP	DIVARTY CDR	COL
Leader Characteristics		E3		
Benefitted from NCOs' receiving Battle Staff NCO training at NCOA.				
BDE	2nd Ar Div	BCTP	DISCOM CDR	COL
Leader Characteristics		E2		
Commanders' employment of XO / Deputy Cdrs in their TOCs eased logistics coordination / problems. At troop levels, NCOs assumed more responsibility; their ability to do so hampered by lack of operations training in ANCOC and BNCOC.				
BDE	1st Cav Div	BCTP	Brigade CDR	COL
Leader Characteristics		E2		
Staff good; together a long time. Technical experts and LNO did not always contribute to mission analysis and passing on assignments.				
BDE	1st Cav Div	NTC	Brigade CDR	COL
Leader Characteristics		E2		
4 of the 6 battalion cdrs were in command less than 60 days, but it was end of rotation--had developed.				
BDE	1st Cav Div	BCTP	DISCOM CDR	COL
Leader Characteristics		E2		
Good subordinate skills; could depend on them. Could solve problems. Supported commanders maintained sensitivity to logistics requirements.				
BDE	1st Cav Div	BCTP	DIVARTY CDR	COL
Leader Characteristics		E3		
High quality and training of people in FSE. FSE personnel must show initiative because DIVARTY Cdr is with CG.				
BDE	2nd Ar Div	DESERT STORM	Brigade CDR New	BG
Leader Characteristics		E2		
Generally capable subordinate commanders, but one had low tactical expertise--spent a lot of time with him.				

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor		Impact		
Rationale				
BDE	82nd AB Div	BCTP	Brigade S3	MAJ
Leader Characteristics		H2		
One TF looked at each task as guidance, did not follow intent. Lacked teamwork. The other TF cooperated.				
BDE	2nd Ar Div	BCTP	Brigade S3	MAJ
Leader Characteristics		E2		
Subordinate leaders were well trained, experienced in working together.				
BDE	1st Cav Div	NTC	Brigade S3	MAJ
Leader Characteristics		E2		
Developed skills during home station training.				

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
BN	82nd AB Div	JRTC	AB TF CDR	LTC
Leader Characteristics			E2	
Staff new but technically competent; had to learn SOP. Company commanders were experienced (6-24 months); all showed initiative.				
BN	82nd AB Div	JRTC	FA Bn CDR	LTC
Leader Characteristics			E2	
High staff turnover, but subordinate commanders and soldiers with critical jobs (e.g., PADS, radar) were experienced.				
BN	82nd AB Div	JRTC	FS Bn CDR	LTC
Leader Characteristics			E2	
Subordinates were experienced and well trained. Good teamwork. All helped offset "first time" aspects.				
BN	2nd Ar Div	BCTP	FS Bn CDR	LTC
Leader Characteristics			E3	
Everyone knew his job. High perseverance.				
BN	2nd Ar Div	DESERT STORM	TF CDR	LTC
Leader Characteristics			E3	
Leaders were well trainded; high quality personnel.				
BN	2nd Ar Div	NTC	FA Bn CDR	LTC
Leader Characteristics			E3	
Third NTC rotation; understood the process.				
BN	1st Cav Div	NTC	FS Bn CDR	LTC
Leader Characteristics			H1	
Only S4 and SGM were in same position.				
BN	1st Cav Div	NTC	FA Bn CDR	LTC
Leader Characteristics			H3	
High turbulence: new Cdr, FSO, S3, GSR Cdr, Bde Cdr, and 1 new TF Cdr.				
BN	1st Cav Div	NTC	Armor TF CDR	LTC
Leader Characteristics			E3	
Had gone through FLTP together. Kept same internal structure.				

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
CO	82nd AB Div	JRTC	FA Btry CDR	CPT
			E1	
Leader Characteristics				
Little experience on digging individual fighting positions at battery position.				
CO	82nd AB Div	JRTC	Supt CO	CPT
			E2	
Leader Characteristics				
Excellent leaders down to E5--used to operating independently. They were operators with good technical skills. Made decisions on their own.				
CO	82nd AB Div	JRTC	Manvr CO	CPT
			H1	
Leader Characteristics				
2 PL weak. New staff (bn) gave confusing guidance.				
CO	2nd Ar Div	BCTP	FA Btry CDR	CPT
			E2	
Leader Characteristics				
Radar technicians effective; got elements operational.				
CO	2nd Ar Div	NTC	MED SUPT CO CDR	CPT
			H1	
Leader Characteristics				
Two platoon leaders were new to their jobs and the Army.				
CO	1st Cav Div	NTC	Maint Co CDR	CPT
			E3	
Leader Characteristics				
Leaders experienced.				
CO	1st Cav Div	NTC	FA Btry CDR	CPT
			E1	
Leader Characteristics				
Easier: battery intact and commander experienced (been to NTC as FSO and staff officer).				
Harder: 1 PL decertified.				
CO	1st Cav Div	NTC	Maneuver Co CDR	CPT
			E2	
Leader Characteristics				
NCOs were highly experienced (even though Co Cdr and 3 PL were new).				

Comments from Command and Control Database for War Fighting Operations

-- Unit Continuity --

Echelon	Unit	Mission	Position	Rank
Factor		Impact		
Rationale				
DIV	82nd AB Div	BCTP	ADC-OPS	BG
History		E3		

Team had been kept together--insisted that DTAC staffing be on a permanent basis rather than selecting those who could be spared for each exercise. Fought as 82d Abn Div always fights. Bde CDRs were highly experienced in airborne operations.

DIV	82nd AB Div	BCTP	Div G3	LTC
History		E3		

Had drilled SOP. Maneuver commanders knew how each other operated, good "cross talk" communication from brigade to brigade.

DIV	82nd AB Div	BCTP	Div CS	BG
History		E3		

Established SOP in first major CPX and stuck with it. Development of standard plays (e.g. normal way we defend) reduced complexity, esp. transition from offense to defense.

DIV	2nd Ar Div	BCTP	Div CDR	MG
History		E3		
DIV	2nd Ar Div	BCTP	Div CS	COL
History		E3		

Staff well trained; had been together at least 8 months.

DIV	2nd Ar Div	BCTP	Div ADC Support	BG
History		H3		

Lacked experience working together.

DIV	2nd Ar Div	BCTP	Div G3	COL
History		E3		

Well established SOP.

DIV	III Corps	BCTP	COSCOM CDR	BG
History		E3		

Was with staff for over a year. Incorporated existing structure.

DIV	1st Cav Div	BCTP	Div CDR	MG
History		E3		

Had worked SOP during train-up.

DIV	1st Cav Div	Elect. Horseman	Deputy G3	MAJ
History		H2		

Purpose of CPX was to try out new configurations and equipment. "Open" DMAIN big improvement. Not trained and comfortable in use of technical equipment.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
BDE	82nd AB Div	JRTC	Brigade CDR	COL
			E2	
History				

All but 4 (SOCCE, PSYOPS, CA, ANGLICO) knew SOP and had trained with unit. Cdr was not initially confident about capabilities of exceptions. Need habitual relation with all, especially S5 (need to understand doctrine).

BDE	82nd AB Div	BCTP	DIVARTY CDR	COL
			E3	
History				

Key personnel and units were used to working with each other. SOP was well scrubbed. Roles/missions are sound in FA.

BDE	82nd AB Div	BCTP	DISCOM CDR	COL
			E1	
History				

Had worked with supported units; could anticipate their requirements. DISCOM staff had matured during pre-BCTP training.

BDE	2nd Ar Div	NTC	Brigade CDR	COL
			E3	
History				

Did not change organization. Also had experienced targeting cell.

Good "rock drills" facilitated coordination.

BDE	2nd Ar Div	BCTP	DIVARTY CDR	COL
			E3	
History				

Typical task organization. Standard D.T.T.P. Principles of GS and DS provided clarity. Understood types of mission; Cdr's intent was clear.

BDE	2nd Ar Div	BCTP	DISCOM CDR	COL
			E1	
History				

Had established SOP.

BDE	1st Cav Div	BCTP	Brigade CDR	COL
			E2	
History				

BDE	1st Cav Div	NTC	Brigade CDR	COL
			E2	
History				

End of rotation, well oiled. Had worked together for 90 days. SOP was in place and was followed.

BDE	1st Cav Div	BCTP	DISCOM CDR	COL
			E3	
History				

Had habitual relationships: dealt with same organizations and same people, following same procedures.

BDE	1st Cav Div	BCTP	DIVARTY CDR	COL
			E2	
History				

Used existing division structure with the corps slice. Used existing SOP. Pulled down by task organization.

BDE	2nd Ar Div	DESERT STORM	Brigade CDR New	BG
			E3	
History				

Had been together 6 months. Systems were smooth.

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
BDE	82nd AB Div	BCTP	Brigade S3	MAJ
			E3	
History				

Brigade had an established pattern of doing things with units. Operations founded on existing doctrine. Used to working with TF staffs participating in the exercises.

BDE	2nd Ar Div	BCTP	Brigade S3	MAJ
			E1	
History				

Had long term relation with subordinate staff. LNO in place. But had to work to develop effective relationship with Corps.

BDE	1st Cav Div	NTC	Brigade S3	MAJ
			E2	
History				

Had set plays: repeated solutions to similar problems. Knew the people.

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor		Impact		
Rationale				
BN	82nd AB Div	JRTC	AB TF CDR	LTC
		E2		
History				
Had well established SOP intergrated throughout TF, but lack of time with attached units caused problems with reporting porcedures. Well established brigade SOP also helped.				
BN	82nd AB Div	JRTC	FA Bn CDR	LTC
		E2		
History				
Had well established SOP; counterfire and other drills set. Clearance of fire procedures set. Had some new people (155 btry).				
BN	82nd AB Div	JRTC	FS Bn CDR	LTC
		H1		
History				
Went from maint bn to FSB; FSB SOP was being developed and was not stable. Brigade C2 SOP stayed constant and made control easier.				
BN	2nd Ar Div	BCTP	FS Bn CDR	LTC
		E3		
History				
Had habitual relationship with supported units and had worked with their leaders.				
BN	2nd Ar Div	DESERT STORM	TF CDR	LTC
		E3		
History				
Company commanders were senior. Staff was seasoned. Had 2/3 weeks on ground, preceded by 70 days at Grafenwoehr, and rotations as CMTC OPFOR.				
BN	2nd Ar Div	NTC	FA Bn CDR	LTC
		E2		
History				
Familiar with maneuver brigade procedures.				
BN	1st Cav Div	NTC	FS Bn CDR	LTC
		E1		
History				
Had good plan and were experienced with structure. Task organization made sense. Hindered by turbulence.				
BN	1st Cav Div	NTC	FA Bn CDR	LTC
		E3		
History				
Had reworked SOP and task organization. Trained with revised SOP.				
BN	1st Cav Div	NTC	Armor TF CDR	LTC
		E2		
History				
Had developed set plays. Knew people and where to go.				

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor Rationale		Impact		
CO	82nd AB Div	JRTC	FA Btry CDR	CPT
		E2		
History				
Battery structure is conducive to control. SOP had been set and refined by JRTC experience (third rotation).				
CO	82nd AB Div	JRTC	Supt CO	CPT
		E2		
History				
NCOs are very experienced in unit (e.g., 1SG in company 8 yrs) and at JRTC.				
CO	82nd AB Div	JRTC	Manvr CO	CPT
		E2		
History				
Had worked with key leaders and knew what to expect. (Next year probably H2.) Company SOP was established.				
CO	2nd Ar Div	BCTP	FA Btry CDR	CPT
		N		
History				
CO	2nd Ar Div	NTC	MED SUPT CO CDR	CPT
		E1		
History				
Had habitual relationship with supported units and had worked with them.				
CO	1st Cav Div	NTC	Maint Co CDR	CPT
		E3		
History				
Second rotation for commander and most leaders.				
CO	1st Cav Div	NTC	FA Btry CDR	CPT
		E3		
History				
SOP in place, well rehearsed. Second rotation.				
CO	1st Cav Div	NTC	Maneuver Co CDR	CPT
		E3		
History				
Subordinates had been in two previous rotations.				

Comments from Command and Control Database for War Fighting Operations

-- External Organizations --

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
DIV	82nd AB Div	BCTP	ADC-OPS	BG
External Organizations			N	
DIV	82nd AB Div	BCTP	Div G3	LTC
External Organizations			H1	

Corps decision process was cumbersome; all important or time sensitive issues were handled by G-3 (possibly caused by BCTP artificialities). Familiar faces with ANGLICO and talent from SOCCE made command and control easier.

DIV	82nd AB Div	BCTP	Div CS	BG
External Organizations			N	
DIV	2nd Ar Div	BCTP	Div CDR	MG
External Organizations			N	
DIV	2nd Ar Div	BCTP	Div CS	COL
External Organizations			N	
DIV	2nd Ar Div	BCTP	Div ADC Support	BG
External Organizations			H2	

Sense that DREAR is an island to itself. Hard to get information.

DIV	2nd Ar Div	BCTP	Div G3	COL
External Organizations			N	
DIV	III Corps	BCTP	COSCOM CDR	BG
External Organizations			N	
DIV	1st Cav Div	BCTP	Div CDR	MG
External Organizations			N	
DIV	1st Cav Div	Elect. Horseman	Deputy G3	MAJ
External Organizations			H1	

Had as many guys in white coats (PMs) as in BDUs. A little bit of a distractor.

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor Rationale		Impact		
BDE	82nd AB Div	JRTC	Brigade CDR	COL
External Organizations		H2		

Worked with role players portraying local civic officials who had own interests vs. those of Bde Cdr. Subordinates are not trained to deal with civilians so cannot delegate.

BDE	82nd AB Div	BCTP	DIVARTY CDR	COL
External Organizations		N		
BDE	82nd AB Div	BCTP	DISCOM CDR	COL
External Organizations		N		
BDE	2nd Ar Div	NTC	Brigade CDR	COL
External Organizations		H3		

Joint and coalition operations complicate C2. Intel from national levels not helpful because of no down link. Also, Corps AD were GS, hence operated independently; complicated land management. Lack of authorized LNO reduced ability to coordinate.

BDE	2nd Ar Div	BCTP	DIVARTY CDR	COL
External Organizations		N		
BDE	2nd Ar Div	BCTP	DISCOM CDR	COL
External Organizations		H2		

Civil affairs aspects (HNS, refugees) added difficulty.

BDE	1st Cav Div	BCTP	Brigade CDR	COL
External Organizations		H3		

Had to coordinate with national police, SOF, and State Dept.

BDE	1st Cav Div	NTC	Brigade CDR	COL
External Organizations		N		
BDE	1st Cav Div	BCTP	DISCOM CDR	COL
External Organizations		N		
BDE	1st Cav Div	BCTP	DIVARTY CDR	COL
External Organizations		N		

BDE	2nd Ar Div	DESERT STORM	Brigade CDR New	BG
External Organizations		H2		

Civilian oil fields posed constraints.

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
BDE	82nd AB Div	BCTP	Brigade S3	MAJ
External Organizations			E3	

SOCC LNO enabled collection of information from SF elements forward of the brigade's screen.

BDE	2nd Ar Div	BCTP	Brigade S3	MAJ
External Organizations			N	
BDE	1st Cav Div	NTC	Brigade S3	MAJ
External Organizations			H1	

Hard to work with different division HQ.

Command and Control - Factors.

Echelon	Unit	Mission	Position	Rank
Factor			Impact	
Rationale				
BN	82nd AB Div	JRTC	AB TF CDR	LTC
External Organizations			N	
BN	82nd AB Div	JRTC	FA Bn CDR	LTC
External Organizations			H1	

Good to have ANGLICO (don't always have at Bde level). Battery from another battalion made harder.

BN	82nd AB Div	JRTC	FS Bn CDR	LTC
External Organizations			N	
BN	2nd Ar Div	BCTP	FS Bn CDR	LTC
External Organizations			H3	

In real battle would have been a factor, e.g., if in Saudi Arabia, would not be prepared for language. Would also need host nation support for transportation.

BN	2nd Ar Div	DESERT STORM	TF CDR	LTC
External Organizations			H3	

Was the flank of the division. Had to coordinate with two division Cav Squadrons.

BN	2nd Ar Div	NTC	FA Bn CDR	LTC
External Organizations			N	
BN	1st Cav Div	NTC	FS Bn CDR	LTC
External Organizations			N	
BN	1st Cav Div	NTC	FA Bn CDR	LTC
External Organizations			N	
BN	1st Cav Div	NTC	Armor TF CDR	LTC
External Organizations			E1	

OCs were helpful.

Appendix F

Acronyms & Abbreviations

ADC-S	assistant division commander for support
ANGLICO	Air and Naval Gunfire Liaison Company
AO	area of operations
ARFOR	Army Forces
ASAS	All-Sources Analysis System
BCTP	Battle Command Training Program
Bde	brigade
BFV	Bradley fighting vehicle
BSA	brigade support area
C^4I^2	command, control, communications, computers, intelligence, and information
CBT	combat
CDR	commander
CINC	Commander in Chief
CONUSA	Continental United States Army
CoS	chief of staff
COSCOM	Corps Support Command
CP	command post
CPX	command post exercise
CS	combat support
CSS	combat service support
CSSCS	Combat Service Support Control System
CTC	Combat Training Center
DA	Department of the Army
DCDR	deputy commander
DISCOM	Division Support Command
Div	division
DIVARTY	Division Artillery
DMAIN	Division Main Command Post
DOD	Department of Defense
DREAR	Division Rear Command Post
DTAC	Division Tactical Command Post
FA	field artillery
FASCAM	family of scatterable mines
FEMA	Federal Emergency Management Agency
FM	frequency modulation
FSB	forward support battalion

FSO	fire support officer
G3	Assistant Chief of Staff for Operations and Plans (division or corps)
G5	Assistant chief of staff, civil affairs
GPS	global positioning system
HHB	headquarters and headquarters battery
HHC	headquarters and headquarters company
HQ	headquarters
HUMINT	human intelligence
IPB	intelligence preparation of the battlefield
IVIS	intervehicular information system
J3	Operations and plans officer on the staff of the JTF
JRTC	Joint Readiness Training Center
JTF	joint task force
LNO	liaison officer
MCS	Maneuver Control System
METL	Mission Essential Task List
METT-T	Mission, Enemy, Terrain, Troops – Time available
MFO	Multinational Force and Observers
MI	military intelligence
MOUT	military operations on urbanized terrain
MP	military police
MSB	main support battalion
MSE	mobile subscriber equipment
NCO	noncommissioned officer
NGO	non-governmental organizations
NTC	National Training Center
OOTW	operations other than war
OPCON	operational control
OPFOR	opposing forces
PADS	Position Azimuth Determining System
PAO	Public Affairs Office
Q36	Firefinder Radar
RC	reserve component

REMBASS	remotely monitored battlefield sensor system
ROE	rules of engagement
S2	Intelligence Officer
S3	training and operations officer on a battalion or brigade staff
S5	Civil military operations
SINCGARS	Single-Channel Ground/Airborne Radio System
SJA	Staff Judge Advocate
SOCCE	special operations command and control element
SOF	special operations forces
SOP	standard operating procedures
TAC	tactical command post
TACFIRE	tactical fire direction system
TF	task force
TOC	tactical operations center
U.S.	United States
UAV	Unmanned Aerial Vehicle
USAREUR	U.S. Army Europe