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Technical Report

Strategic Force Planning Support Program

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September 2000

Prepared for:
Defense Threat Reduction Agency
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Dulles, VA 20166-7517

DNA 001-94-C-0055

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13. ABSTRACT (Maximum 200 words)

The Statement of Work describes a series of long term tasks and quick reaction analytical capabilities which represented DNA assessment and analysis mission support for designated offices at the Unified and specified CINCs, CJCS, OSD, and services. This work involved technical analyses on issues directly related to the strategic forces. The proliferation of missile delivery systems, nuclear technologies and other Nuclear Biological Chemical (NBC) relevant technologies, coupled with the political instability inherent in the collapse of the Cold War International System, resulted in a less certain, more dangerous world. The tasks were the minimum necessary to meet current and emerging requirements for Strategic Force Planning evaluation, assessment and development of potential improvements that addressed the uncertainty of the future.

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Section 1

Executive Summary

The Strategic Force Planning Support contract provided a unique vehicle for strategic operational analytical support to the Unified Commands, Services, the JCS, and OSD. The need was prompted by rapidly changing political-military environment exacerbated by the end of the Cold War and the collapse of the Former Soviet Union. The uniqueness of this contract approach is found in the diversity of the Statement of Work analytical tasks performed. The robustness of the SOW tasks provided the Defense Threat Reduction Agency's customers considerable flexibility in the development and delivery of analytical support. DTRA implemented a customer oriented task planning and control system that was very efficient in responding to over 38 individual analytical tasks. The total level of effort was $4.4 million and represented 50,423 hours of analytical support. Approximately 65% of the total effort was delivered in support of the Unified CINC's, DTRA, the Services, JCS, and OSD. Program continuity was insured by detailed transition provisions involving the preceding Assessments for Strategic Integrated Operations Planning contract and the follow on Strategic Nuclear and Weapons of Mass Destruction Operational Planning Support contract.

Even though the total contract effort was comparatively small, the analytical support delivered was very significant. This report highlights some key accomplishments. Alternative employment and force planning options analyses provided SIOP and Theater Support planning to USSTRATCOM/J5 in response to significant changes in the Nuclear Weapons Employment Planning and associated Joint Strategic Capabilities Planning guidance. One analysis in this area was directly responsible for the positive results of the first U.S.-Russian TMD Command Post Exercise held at the U.S. Joint National Test Facility in June 1996. Integration of nuclear weapon effects into operational planning models support resulted in the delivery of five different updated versions of the PDCALC code used by the national laborotories, DIA, and the CINCs. The impact of changing military capability and policy on U.S. deterrence generated the most customers. Using a DTRA developed analytical framework for deterrence; several classified analyses were used in CINC sponsored conferences and seminars and formed the basis for official policy reviews and planning actions. Analyses of alternative approaches for adaptive planning produced significant insights into solving problems associated with the evolution of new planning environments. Key accomplishments included an architecture for incorporating theater data into the Strategic War Planning System and a Critical Path Method of the extant planning process. Quick reaction tasking resulted in very short suspense analyses and deliverables responsive to fast breaking strategic issues of national concern.

The key to the success of this contract was DTRA's decision to place the analytical support as close to the client as possible and then to insure responsiveness via very close formal and informal contact within the COTR, client, and contractor team. Customer assessment of all delivered analyses ranged from excellent to outstanding.

Section 2

Program Overview

2.1 Program Objective.

The Strategic Force Planning Support contract was designed to provide long term and quick reaction analytical support capabilities to the Department of Defense. Specific clients included Unified and Specified CINCs, CJCS, OSD, and the SERVICES. The analytical focus of this critical work was on strategic forces. The need was prompted by the rapidly changing political-military environment brought about by the proliferation of missile delivery systems, nuclear technologies and other Nuclear Biological Chemical (NBC) relevant technologies. These issues were exacerbated by the end of the Cold War and collapse of the Former Soviet Union and resulted in a less certain, more dangerous world. The scope of work included the minimum necessary to meet current and emerging requirements for strategic force planning evaluation, assessment and development of potential system improvements that address the uncertainty of the future.

2.2 Customers and Level of Effort.

Table 1 provides a summary of the Statement of Work that guided all task assignments under this contract. The scope and depth of analytical support provided in support of the objectives cited above was extensive. However, in all cases and for all customers, the analytical support provided was related to one or more of the basic SOW tasks. In many cases analytical expertise in support of the customer's specific analytical requirements was drawn from several sources. For example, work provided to USSTRATCOM under SOW Task 8 included analytical work drawn from Task 2, Deterrence and Military Capabilities, and Task 3, Arms Control and Policy. This was necessary because the driving requirement was to analyze alternative employment options which might be required by changing deterrent capabilities of extant force structure and national policy. Therefore, this robust set of SOW tasks provided the customer and DTRA considerable flexibility in the development of analytical tasks. This allowed DTRA to provide customer analytical support, from one or more of the specific SOW tasks, in 38 specific work tasks. (Appendix A) Each of these work tasks had a specific analytical objective, technical approach, and a deliverable.

Table 1. SFPS SOW tasks.

•	TASK 0	MANAGEMENT RESERVE
•	TASK 1	ADAPTIVE PLANNING
•	TASK 2	DETERRENCE AND MILITARY CAPABILITIES
•	TASK 3	ARMS CONTROL AND POLICY
•	TASK 4	OFFENSE-DEFENSE GAMING AND MODELS
•	TASK 5	LOW YIELD WEAPON EMPLOYMENT
•	TASK 6	ALTERNATE MOEs
•	TASK 7	ACM AND LOW YIELD MODELING
•	TASK 8	ALTERNATIVE EMPLOYMENT OPTIONS
•	TASK 9	FORCE PLANNING OPTIONS
•	TASK 10	ALTERNATIVE C2 SYSTEMS
•	TASK 11	NEW MODELING INTEGRATION
•	TASK 12	FORCE STRUCTURE DEVELOPMENT
•	TASK 13	QUICK REACTION ANALYSIS

Section 3

Planning and Control

3.1 Establishing and Maintaining Control.

Establishing and maintaining control of analytical support provided to such a wide range of geographically and functionally diverse customers was a critical program management concern of the DTRA COTR, the supported customer, and the contractor team. There were over thirty different customer points of contact over the life of this contact. In some cases, the customer point of contact was changed three or more times over the period covered by a specific analytical support task. There have been four DTRA COTR and two contractor principal investigators over the life of this contract. Therefore, the coordination and oversight activities between the customer and DTRA and between the contractor and DTRA required the establishment and implementation of specific management controls to insure technical responsiveness within a priori budget allocations for each subtask. Figure 1 depicts the key elements of the planning and control system used. It was and continues to be a highly effective management tool and was adopted for use in the follow on contract, Strategic Nuclear and Weapons of Mass Destruction Operational Planning Support contract.

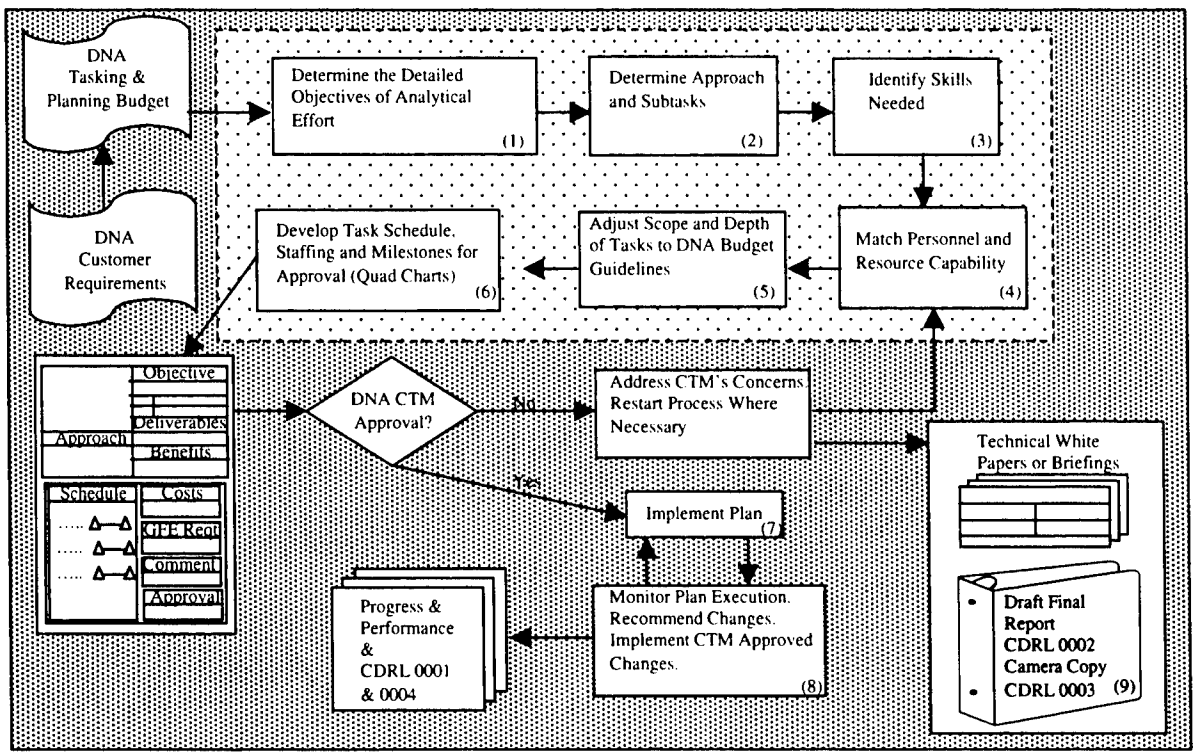

Figure 1. SAIC's task planning and control process insures responsiveness to DTR customers.

3.2 Task Development and Approval.

This was an iterative process, first between the DTRA COTR and the customer POC, and subsequently between DTRA, customer, and the SAIC program manager. This initial step was critically important because no two of the 38 subtasks undertaken were the same. For each subtask, the task objective served as the basis for assessment and evaluation of the technical approach, the attendant schedule, and the deliverables. This process served to establish a common set of expectations among DTRA, customer, and contractor personnel about task performance. Since the scope and depth of many analytical support tasks could far exceed available resources under this contract, DTRA provided "level of effort" estimates which served as a planning parameter for each subtask developed.

3.3 Task Management and Quality Control.

This was accomplished jointly through DTRA sponsored In -Progress Program Reviews (IPR). In addition to these IPRs, the contractor conducted an in-house quality control and peer review program. Often, and in all cases with DTRA approval, SAIC would conduct in-formal progress reviews with specific customer personnel. In some cases, SAIC and customer contact with the customer was almost a daily event. This frequent interaction provided for highly responsive analytical support as well as an opportunity to make changes in technical approach, schedules, and deliverables. Since many of the analytical issues were in response to fast breaking world events, task direction, technical approach, and deliverables were often modified, after explicit DTRA approval, to insure that the deliverable was as responsive as possible to the analytical need at the time of delivery.

3.4 Financial Tracking and Budgetary Control.

These requirements covered such a diverse set of analytical tasks and required frequent capturing and reporting of program expenditures. The Program Management Plan (Appendix B) and the attendant monthly progress report (CDRL 0001) provided DTRA management the opportunity to track and assess task progress. These reports were submitted once every four weeks. These same data were captured and reviewed by SAIC personnel every two weeks. Therefore, program to date expenditures as well as recent four week trends were available for review by DTRA and SAIC management the first working day following close of a two week timecard cycle.

Section 4

Mission Assessment and Analysis Support

4.1 Assessment and Analysis .

The significant contributions of this contract in providing analytical support to the customers cited above are summarized under the following four areas: Alternative Employment and Force Planning Options, Military Capability/Policy Impact on Deterrence, Integration of NWE in Operational Planning Models and Alternative Approaches for Adaptive Planning.

4.2 Alternative Employment And Force Planning Options.

This area included analytical support described in SOW tasks 8-10. Analytical support to the CINCs and JCS-J5 (Appendix A, Subtask 8.2) provided a series of analyses over the five-year contract period. This task provided DTRA, the Joint Staff, J-5, Deputy Director, Strategy and Policy (DDS&P) and the Warfighting CINCs technical and analytical support in developing National strategy, doctrine, and tactics related to: development and deployment of Ballistic Missile Defenses (BMD), both National Missile Defenses (NMD) and Theater Missile Defenses (TMD); TMD enhancements for NATO; offense-defense integration; Presidentially directed BMD and Shared Early Warning (SEW) cooperation with friends and allies; ongoing U.S. and Russia SEW discussions in support of the Joint Presidential Summit Statement by Presidents Clinton and Yeltsin; the U.S. and Russian TMD Exercise Program; and, related technology cooperation initiatives. It also provided enhanced space support to the warfighting CINCs.

One activity involved critical technical support to the U.S. "TMD Experts" Group and the Bi-National activities of the U.S.-Russia TMD Exercise Program. Analytical support provided was in direct response to the Joint Presidential Statement made by Presidents Clinton and Yeltsin on TMD cooperation. This support was directly responsible for the positive results of the first U.S.-Russian TMD Command Post Exercise (CPX) held at the U.S. Joint National Test Facility in June 1996 and the second U.S.-Russian TMD CPX that was held in Moscow in January 1998. This event marked the first combined exercise of any type hosted by the Russian Federation.

This task also provided technical support to NATO's Missile Defense Ad Hoc Group through the Office of the Ballistic Missile Defense Organization's Deputy for Strategic Relations. Responding to NATO North Atlantic Council (NAC) tasking, a detailed plan was formulated that outlined the steps, decision documents, and resources required to establish NATO programs for layered TMD defenses against WMD weapons and their associated delivery vehicles. It also supported development of the required sensor capabilities needed to support NATO's layered TMD systems.

To insure interoperability, this task also provided technical support to the Plans and Operations Sub-Group (POSG) of the Bi-National U.S.-Israel Theater Missile Defense Policy Advisory Group (TMD-PAG). Efforts under this task supported representatives from the Joint Staff,

USEUCOM, the Ballistic Missile Defense Organization, and U.S. response to counter the proliferation of weapons of mass destruction and their associated delivery systems.

Alternative Employment Options (Appendix A, Subtask 8.3) provided direct support to USSTRATCOM/J5 in both their SIOP and Theater Support planning roles. This subtask can be considered the key analytical subtask in respect to the objective of the Strategic Force Planning Support contract. Analytical results provided under this specific subtask included insights gained from all other subtasks. This leveraging had the result of enhancing both the depth and scope of alternative option analyses. This subtask specifically supported the development and presentation of the SIOP Revision Report to the Chairman, Joint Chiefs of Staff. A couple of specific analytical issues worked under this subtask provide additional insight into the type of support provided.

Public debate relating to a perceived risk resulting from an alleged decline in Russian early warning and attack assessment systems led to DOD efforts to examine proposals relating to de-posturing of US nuclear forces and further dramatic reductions in nuclear forces beyond levels stipulated in START II. This particular analytical effort examined the impact of a wide range of de-posturing steps and the ability of USSTRATCOM to achieve current nuclear policy objectives at progressively lower force levels. Analysis performed on these projects contributed substantially to national-level positions established during a sequence of Pentagon "Tank" sessions.

The dramatic change in the military landscape resulting from the breakup of the Soviet Union and Non-Soviet Warsaw Pact, and subsequent Russian withdrawal of nuclear forces from former republics led to an equally dramatic need to adjust targeting policy. Work under this subtask contributed to development of new nuclear planning strategies and alternative planning options, as expressed in three consecutive Single Integrated Operational Plan Concept Briefings before the Joint Staff and OSD. On each occasion, these efforts were applauded as outstanding efforts by the USSTRATCOM Director of Plans and Policy.

4.3 Military Capability And Policy Impact.

This subtask on deterrence was the most active area in terms of specific analytical subtasks developed and presented to DTRA customers. Of the 38 total subtasks performed, nine were developed and supported from this area. (See Appendix A, Subtasks 2.1-2.9) This area was also the most robust in terms of customers served. USSTRATCOM, USPACOM, USCENTCOM, OSD, and the Department of Navy. DTRA's early sponsorship of the development of an analytical framework for deterrence analyses resulted in an increasing demand for both an understanding of deterrence in transition as well as specific analyses of specified theater scenarios. Deterrence framework analyses of particular importance included assessments of the WMD deterrence calculus of Iraq, North Korea, and China. These analyses were used in CINC-sponsored conferences and planning seminars aimed at improving US counterproliferation capabilities, and formed the basis for official policy reviews and planning actions. Also of note was a report analyzing and summarizing interim findings regarding post-Cold War WMD deterrence. Finally, work was begun under this contract to augment the deterrence framework for application to the analysis of non-state actor deterrence issues.

4.4 Integration Of NWE In Operational Planning Models.

This subtask included work described in tasks 4-7 and 11. Of the four areas being reviewed, this area consumed the most resources, between 20-25% of program expenditures. Six subtasks were developed under Task 11, each of which directly supported critical planning issues in the areas of FAS/CIVIC, Radiation effects, PDCALC Panel, EMP, HISEMM, and fallout protection factors. The analytical support to the PDCALC Panel impacted the entire nuclear weapon technical and employment planning community. DTRAs support to this effort helped insure that current state-of-the-art codes relative to nuclear weapon effects were standardized across the nuclear planning community. Updated protection factors provided critical fallout injury and fatality assessments in key countries of interest as part of the overall war planning process. These factors enhanced assessments for SIOP Consequences of Execution and Wargaming activities as well as the special analyses required from time to time. A series of four fallout protection factor distributions were developed for a potential key adversary in the format required by FAS/CIVIC, the principal fallout injury and fatality prediction code used by USSTRATCOM.

Activity concerning PDCALC User's Group under the Strategic Force Planning Support contract was extensive. Five different updated versions of the code were developed and tested by SAIC and ultimately released to the users by USSTRATCOM J53 (PDCALC 6.0, 6.1, 6.2, 7.0, 7.1). These versions incorporated the following capabilities (list not all inclusive): addition of deeply buried target methodologies (GVNs), updated personnel vulnerability curves, correction of weapons radius-height of burst curves (HOB Cutoff), three-dimensional fuzing ("3DPD") option, and HOB cutoff mathematical fix. These updates reflected user requirements that keeps PDCALC a current, reliable and extremely powerful code for estimating nuclear damage. Since March 1994, the PDCALC Oversight Panel, composed of representatives from DTRA, USSTRATCOM, DIA, Sandia Nat Labs, the Joint Staff, SAIC and LOGICON RDA, has met six times to review, evaluate and approve code changes recommended form users. During the same period, the PDCALC User's Group has met three times. Clearly, DTRA has made a significant contribution to the nuclear planning community through their long standing support of the technical panel.

One of the most widely acclaimed deliverables from this analytical support area was the development of the Nuclear Targeting Course. This five-volume effort was the first developed and implemented at USSTRATCOM. This work filled an urgent need to train newly assigned personnel on how each of the tools, MOES, and models are integrated in to the nuclear targeting process. Published on CD-ROM, DTRA has delivered copies to multiple users within DoD. The Nuclear Targeting Course was published in five volumes and has become the seminal work on the instruction of processes and issues involved with nuclear targeting. The course covers, in detail, the nuclear planning environment, target development, weaponeering/DGZ construction and deliberate/adaptive planning for the SIOP and theater support. The original version (published December 1996) and the updated version (published June 1998) have been used to train nearly100 targeting analysts. Since training with the Nuclear Targeting Course began two years ago, the graduates have been reassigned to other unified commands with nuclear responsibilities contributing much needed nuclear targeting expertise to appropriate planning

elements within DoD units worldwide. Most recently the staff at Joint Targeting School (Dam Neck, VA), has requested a copy of this course for use in curriculum development.

4.5 Alternative Approaches For Adaptive Planning.

The analytical support for this subtask required in-depth analysis of the contributions of new technologies, hardware and software that would provide increased responsiveness to significantly different strategic and regional scenarios. This resulted in the development of a Critical Path Method flow chart (Appendix A, Subtask 1.2) of the extant planning process that could be used to evaluate alternative adaptive planning processes. This required evaluation of data base compatibility between strategic and theater planning processes to include a thorough review of the theater planning process (Appendix A, Subtask 1.3) and theater data requirements (Appendix A, Subtask 1.5). Key deliverables from this area were an architecture for incorporating theater data into the Strategic War Planning System (SWPS) enterprise database (EDB), a Theater Data Model, and integration of that model into a C2/SWPS integrated data model baseline, each intended to streamline and improve the theater nuclear planning process. DTRA's analytical support to this critical effort directly supports the SOW objective to identify new systems and capabilities to plan for the integration of nuclear and conventional delivery systems, primary and collateral effects, and C^3. This work has been very favorably received by USSTRATCOM and it is used to enhance USSTRATCOM's distributed collaborative planning capability during both peacetime and under crisis conditions.

Section 5

Conclusions

This final draft report is submitted for review by DTRA. The objectives of this work as outlined in the Statement of Work have been met. The 38 Subtasks described in Appendix A provide a detailed description of what work was performed, the technical approach used, and the deliverable. Monthly and quarterly progress reports, IPRs, and the individual deliverables associated with each subtask represent, collectively, the scope and depth of support provided. The number of subtasks, diverse set of customers, and dynamics of rapidly changing military planning environments presented unique challenges to DTRA management and contractor personnel. All DTRA/Customer analytical objectives were met and customer feedback throughout this contract performance was very exceptional.

Appendix A
Subtask Work Tasks

SFPS
Strategic Force Planning Support

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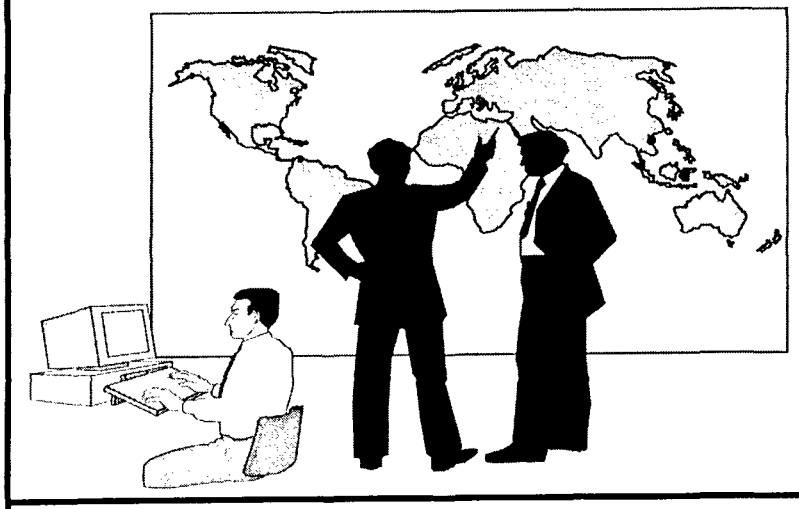

Approach

- **Review guidance, force structure, and internal decision papers used for SIOP development.**
- **Analyze SIOP applied weapon files for success as measured by established MOEs.**
- **Analyze alternative MOEs.**
- **Analyze alternatives for SIOP weapon allocation and impact of attack structure changes on SIOP complexity.**

Objective

Analyze national level guidance, internal decision papers, available force structure, and laydown information for the SIOP to assess USSTRATCOM's capability to effectively meet national objectives while reducing SIOP complexity.

Customer:	**USSTRATCOM/J52A: CAPT L.J. Mack, Chief Strategic Plans Division DSN: 271-6984**
SAIC Principal Investigator:	**DR. Allen K. Rachel (619) 546-6397 POC: Mr. Michael S. Elliott (402) 293-5285**

Deliverables

- **Technical papers as required - e.g..**
  - **CPM Planning Networks**
  - **Quality Assessment Reports**
- **Annotated briefings as required - e.g..**
  - **Concept Briefing**
  - **Revision Report**

Benefits

Develop improved strategy for planning activities during development of future SIOPs. Ensure compliance with national level guidance and/or document anticipated shortfalls in achieving national level guidance. Foster SIOP simplification.

Chart A-1. Subtask 1.1 – Analyze SIOP Planning Effectiveness.

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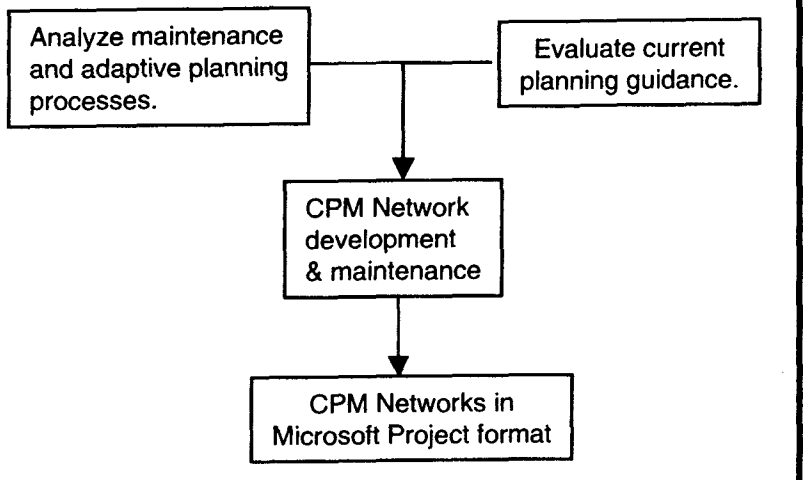

Approach

- Evaluate current planning guidance to determine its impact on network activities.
- Evaluate SIOP maintenance and adaptive planning processes to identify major CPM sub-networks, activities, and milestones impacted.
- Develop and maintain, as required, a critical path model the SIOP maintenance and adaptive planning processes Microsoft Project format

Objective

To develop Critical Path Method (CPM) networks of the SIOP maintenance and adaptive planning processes for use by J52 as a production management and quality assessment tool.

Customer:	USSTRATCOM: CAPT R.R. Stark, USN,Chief, Strategic Plans Division (402) 294-6984
SAIC Principal Investigator:	Michael S. Elliott, (402) 293-5285 POC: Mr. Michael S. Elliott, (402) 293-5285

Deliverables

- CPM networks of SIOP maintenance and adaptive planning processes
- Microsoft Project formatted critical path model on 3.5" disk

Benefits

- Provide highly responsive and efficient analytical impact assessment of maintenance and adaptively planned options.
- Provides a critical analytical tool to assess impact of crisis planning requirements on normal production /maintenance schedule.

Chart A-2. Subtask 1.2 – Develop and Maintain Critical Path Model.

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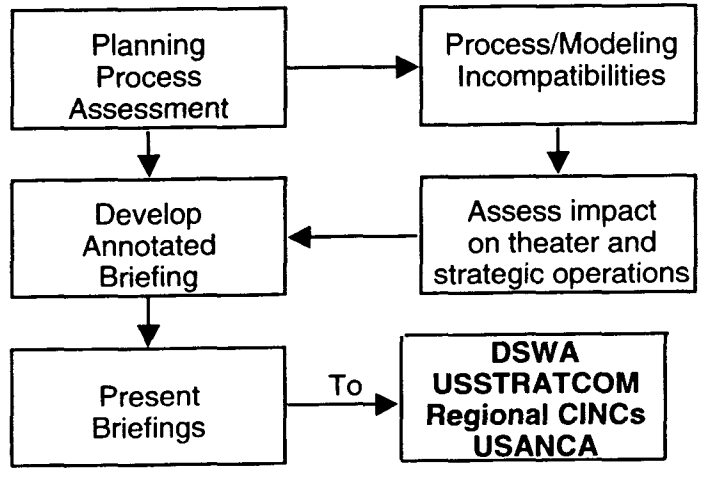

Approach

Phase 1.

- Compare 3-12.2 and CINC planning process
- Identify process and/or modeling incompatibilities
- Assess impact of incompatibilities on theater operations
- Develop annotated briefing of findings.
- Present briefings to DSWA designated audiences

Phase 2. TBD--If requested, could provide analytical support to the development of and implementation of a plan to correct any process weaknesses.

Objective

Assess Theater and Strategic Nuclear Planning publications, planning documents, and CINC relationships that may impact or be impacted by the application of PDCALC and Joint Pub 3-12.2 in theater nuclear targeting support scenarios.

Customer:	Phase I: DSWA, CINC Support Office, LTC Paul Perrone, (703) 325-1688
SAIC Principal Investigator:	Dr. Allen K. Rachel, (619) 546-6397 POCs: John Ricca, (703) 749-8623 Mike Elliott, (402) 293-5285

Deliverables

- Annotated Briefing: Problem Identification, Scope and recommended follow-on action plan.
- Briefing Presentation to DSWA designated clients.

Benefits

Provides the analytical evaluation necessary for improvements, if needed, in the nuclear planning process, models, and Theater/USSTRATCOM planning relationships.

Chart A-3. Subtask 1.3 – Theater Process Review.

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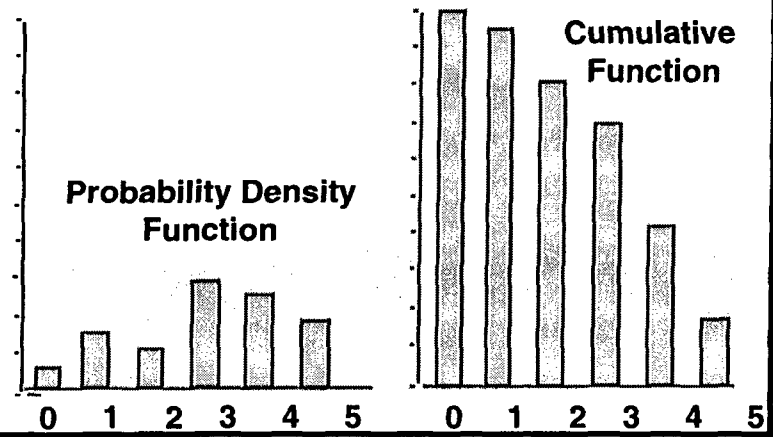

Approach

- Illustrate the value of MTAP by giving realistic examples of small option applications.
- Upgrade MTAP for current use:
  - Replace PDCALC 4.0 with 7.0
  - Improve means of transferring target and strike file data to MTAP
  - Change cumulative plot from "not more than" to "at least"
  - Add a plot of the history of damage for each installation across all Monte Carlo runs
  - Improve the quality of graphics of the probability density and cumulative plots

Objective

To provide an improved MOE for use in evaluating small nuclear options.

Customer:	CAPTAIN R. R. Stark, USN USSTRATCOM J52 (402) 294-0469
SAIC Principal Investigator:	Mr. Michael S. Elliott (402) 293-5285 POC: Mr. Roger Craver (402) 293-5225

Deliverables

- An upgraded version of MTAP as described in the approach
- Users' Manual for the upgraded version of the code

Benefits

- Availability of information on the *distribution* of outcomes as well as the expected value
- Better information for the decision maker
- Improved basis for targeting modifications
- Rapid calculation for small options

Chart A-4. Subtask 1.4 – Multiple Target Attack Program Update.

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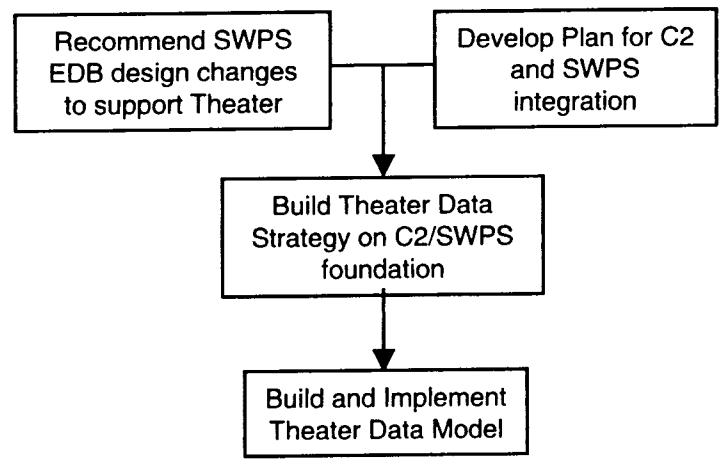

Approach

Phase 1: Build Theater Data Strategy

- Determine missions, information suppliers and customers, and the data required to perform mission
- Build plan for Data Administration and Data Management for Theater systems

Phase 2: Build Theater Data Model

Phase 3: Facilitate Implementation as part of C2/SWPS or Command EDB

Objective

To develop a Theater data strategy to form the foundation for USSTRATCOM support to the Theater CINCs and the Joint Forces commanders.

Customer:	CAPT J.L.Paulson,USN,Chief,USSTRATCOM, Theater Plans Division (402) 294-1630 CAPT D.J.McAneny,USN,Chief,USSTRATCOM, Systems Analysis Branch (402) 294-7664
SAIC Principal Investigator:	Dr. Mark A. Roth, (402) 293-5288 POC: Mr. Michael S. Elliott, (402) 293-5285

Deliverables

Technical papers and designs as required

Benefits

- Consistent and accurate source of data for targeting, mission planning and plan analysis provided by USSTRATCOM in support of Theater Operations
- Integration of/with USSTRATCOM's Databases (SWPS, C2, NPES, Intel)

Chart A-5. Subtask 1.5 – Theater Data Strategy.

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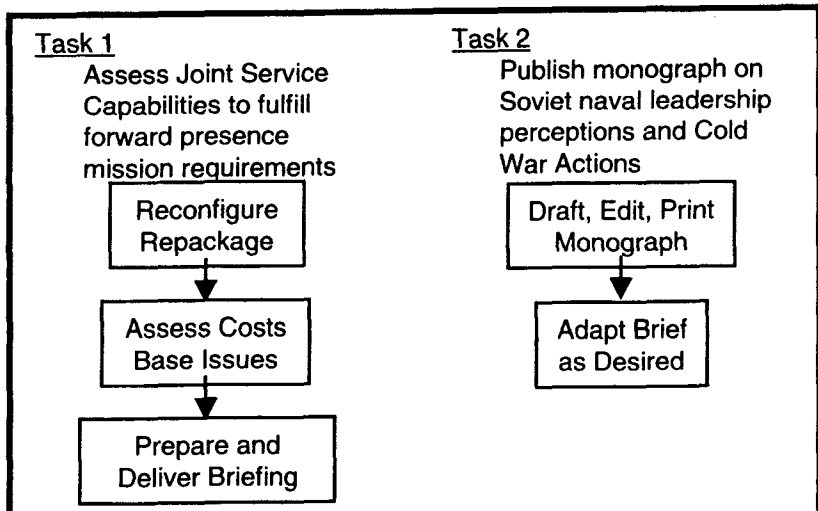

Approach

Task 1

- Reconfigure Air Force Composite Wing structure and elements of DRB of 82nd Airborne for 30 days of contingency operations;
- Assess additional cost and basing issues including amortized costs of CVN recoring, logistics requirements, personnel costs, etc.
- Building on work completed, build brief for presentation to JMA Flag Steering Group

Task 2

- Draft monograph on perceptions, actions, and reactions of Soviet naval leadership in response to US Navy Cold War strategy, force structure, forward presence operations, and exercises.

Objective

Continue work to (1) assess capabilities of other services to supplement/complement US Naval capabilities in fulfilling forward presence requirements and (2) assess perceptions of former Soviet elites regarding "Cold War" naval forward presence and exercises.

Customer:	Director, Strategy and Policy Division (N51) OPNAV
SAIC Principal Investigator:	Dr. Allen Rachel, PI (619) 546-6397 Dr. Stan Weeks, POC (703) 749-8913

Deliverables

- Task 1: Executive-level briefing on joint adaptive force packages for JMA Flag Steering Group.
- Task 2: Printed monograph on Soviet Cold War naval actions in response to US Navy forward presence operations.

Benefits

Assists Navy in operational and force structure planning for post-Cold War era.

Chart A-6. Subtask 2.1 – Forward Presence: Contribution to Deterrence.

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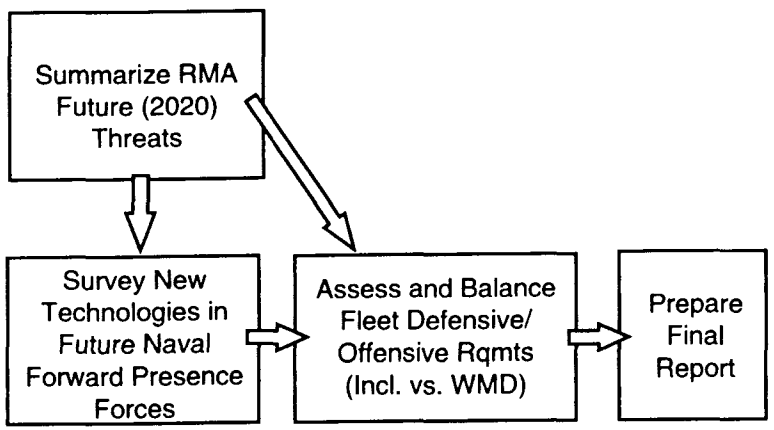

Approach

- Research current and future naval systems technologies applicable to Joint Power Projection Operations in the 2020 time frame
- Assess trade offs between defensive needs of forward deployed forces and offensive capabilities
- Prepare final report

Objective

- Identify new technologies and operating concepts to enhance capabilities of naval forces operating forward against future threats (including WMD).

Customer:	RADM John Mazach, USN, Director, Strategy and Policy Division (N51), OPNAV
SAIC Principal Investigator:	Dr. Allen K. Rachel, PI, 619-546-6397 Dr. Stan Weeks, POC, 703-749-8913

Deliverables

- Final Report

Benefits

- Identify naval capabilities and force structure to meet future national security needs
- Analysis will form basis for future gaming for concept validation and force planning

Chart A-7. Subtask 2.2 – Future Naval Deterrence and Offensive Capabilities.

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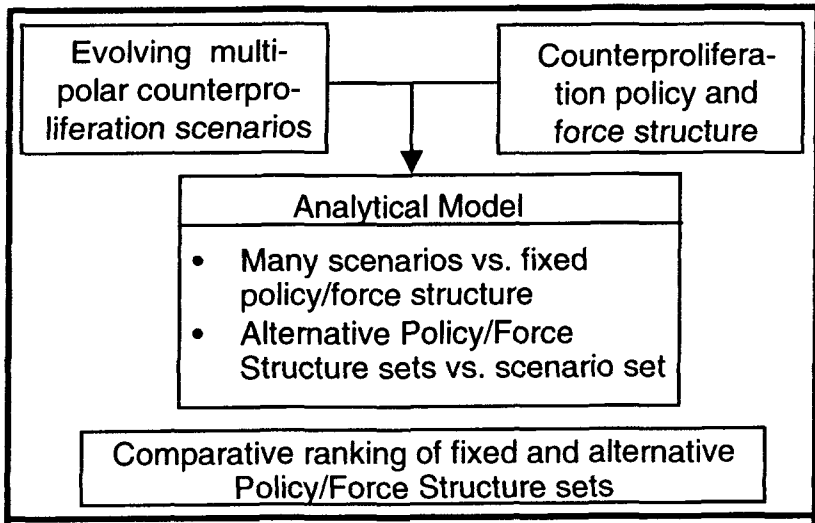

Approach

- Identify analytical variables
- Develop dependent and interdependent relationships among variables
- Adopt measurement conventions for each variable
- Develop alternative MOE sets
- Test many scenario vs. fixed
- Adjust relationships as required
- Test second alternative against scenarios
- User test of analytical model
- Adjust model as required

Objective

Develop an analytical framework that facilitates comparative analysis of alternative deterrence approaches to the needs of multi-regional scenarios.

Customer:	
SAIC Principal Investigator:	

Deliverables

- Input variable list with recommended data measures
- Analytical model
- User training and test support
- Final Report

Benefits

- Framework is applicable to a wide variety of scenarios
- Can deal with regional/coalition scenarios
- Provides useful insights with non-parametric data
- Provides the counterproliferation deterrence context and helps prioritize detailed, parametric, alternative force structure/policy evaluations

Chart A-8. Subtask 2.3 – Deterrence: An Analytical Framework.

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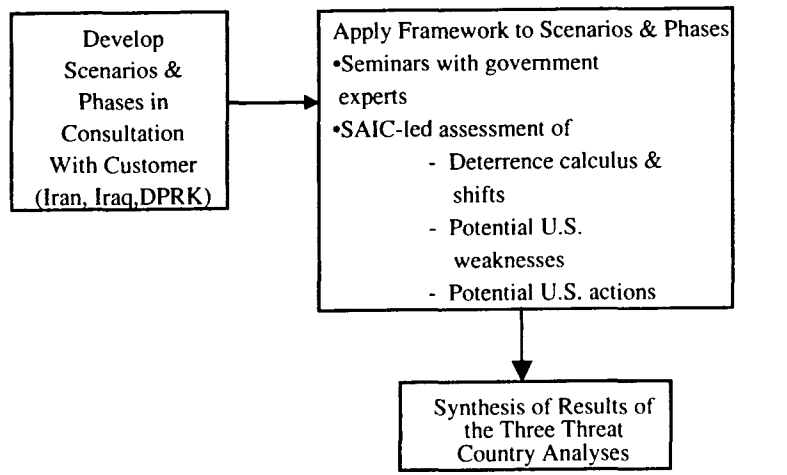

Approach

- For each threat country of interest (Iran, Iraq, DPRK):
  - Develop potential WMD use scenarios and crisis/conflict phases that highlight potential shifts in the enemy's WMD deterrence calculus circa 2003
  - Apply the deterrence analytial framework to these scenarios and phases and assess the enemy's WMD deterrence calculus, noting potential shifts.
  - Identify U.S. actions that could enhance deterrence at each phase in each scenario and high leverage actions across scenarios and phases
- Following completion of the above for all three threat countries,
  - Identify consistent potential weaknesses in U.S. WMD deterrence posture across the three threats
  - Identify high leverage U.S. actions to enhance deterrence across the three threats

Objective

Rigorously assess the WMD deterrence calculus of three regional WMD proliferators, highlight potential weaknesses in that U.S. deterrence posture at different points in a crisis/conflict across a number of plausible scenarios, and identify potential U.S. actions that could enhance deterrence.

Customer:	OSD Directorate of Counterproliferation Analysis & Response: Mr. Robert Irvine (703) 697-3645
SAIC Principal Investigator:	PI: Dr. Allen K. Rachel (619) 546-6397 POC: Mr. Greg Weaver (619) 546-6710

Deliverables

- Phase by phase assessment of the deterrence calculus of each subject country across a number of plausible scenarios.
- Summary of potential weaknesses in U.S. WMD deterrence posture across phases of crisis/conflict for each subject country.
- Summary of potential U.S. actions or combinations of actions that could enhance deterrence and identification of high leverage actions across phases, scenarios, and threats.

Benefits

- Deeper, more rigorous understanding of the WMD deterrence calculus of three potential U.S. adversaries, including how and when that calculus might shift.
- Insights into weaknesses in current U.S. WMD deterrence posture.
- Identification of potential means of enhancing deterrence across a variety of scenarios and adversaries.

Chart A-9. Subtask 2.4 – WMD Deterrence Analytical Support to OSD Policy.

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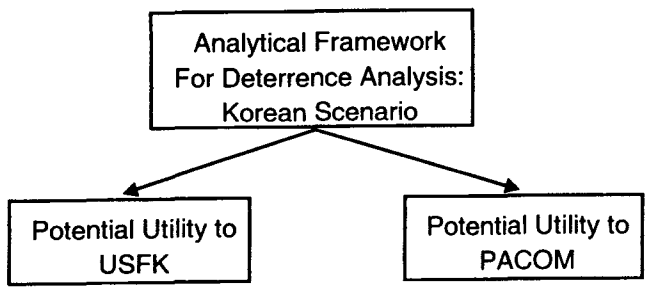

Objective

To provide an opportunity for USFK/PACOM to evaluate applicability of the Deterrence Framework to their requirements process.

Customer:	DSWA/OPSFC LTC Paul Perrone (703) 325-1688
SAIC Principal Investigator:	PI: Dr. Allen K. Rachel (619) 546-6397 Lead Analyst: Mr. Greg Weaver (619) 546-6710

Deliverables

- Deterrence Framework Briefing to USFK
- Deterrence Framework Briefing to PACOM

Approach

- Develop/modify briefing materials
- Review briefings (Internal SAIC)
- Review briefings with DSWA/staff
- Accompany DSWA/Present briefings to USFK/PACOM

Benefits

Provides USFK/PACOM a "hands on" opportunity to evaluate utility of a DSWA developed tool.

Chart A-10. Subtask 2.5 – Deterrence Analysis for USFK/PACOM.

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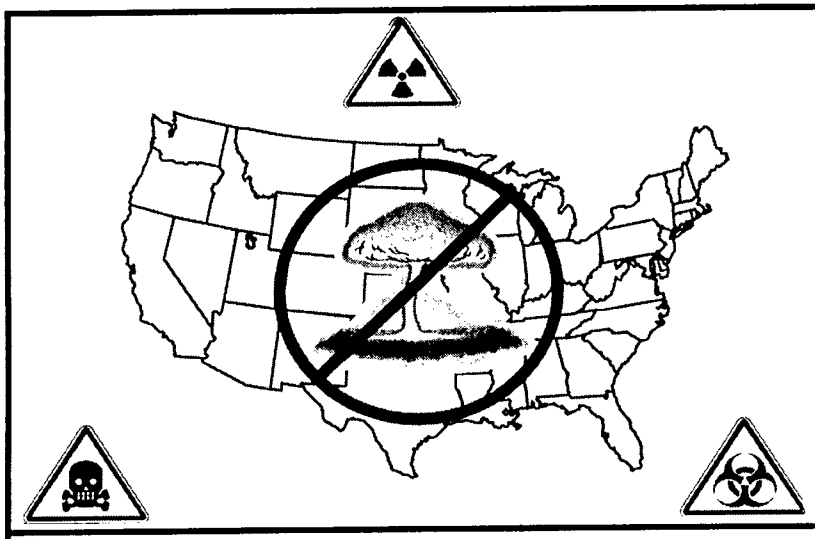

Approach

- Apply SAIC's Deterrence Analytical Framework to the assessment of the deterrence calculus of specified WMD-armed countries.
- Assess potential shifts is these adversaries' deterrence calculus as crises or conflicts unfold.
- Assess the deterrence impact of alternative U.S. force structures, postures, policies and actions.

Objective

Provide analytical support to assess the deterrence calculus of specified countries which are capable of employing or threatening to employ weapons of mass destruction, particularly nuclear weapons, against the United States and its allies.

Customer:	USSTRATCOM: LTC William L. MacElhaney, J51 (402) 294-1651 LCDR Dennis Carpenter (402) 294-3617
SAIC Principal Investigator:	PI:Dr. Allen K. Rachel (619) 546-6397 Lead Analyst: Mr. Greg Weaver (619) 546-6710 STRATCOM POC: Mr. Michael S. Elliott (402) 291-2233

Deliverables

Technical papers and annotated briefings as required.

Benefits

Provide a detailed understanding of relevant issues in each potential adversary's deterrence calculus, for both strategic and theater conflicts. This analysis will enhance development of preplanned options and through exercising, lead to improved option development for crisis planning situations. It will also clarify contribution of USSTRATCOM forces and planning to the deterrence of the use of weapons of mass destruction.

Chart A-11. Subtask 2.6 – Deterrence Analysis for USSTRATCOM.

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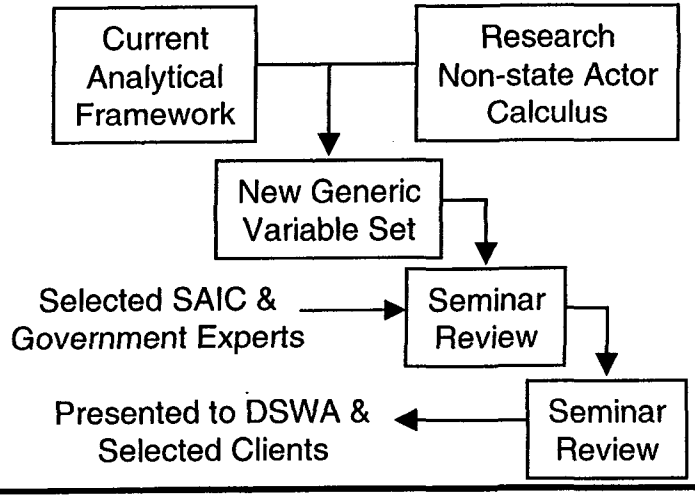


Approach

Phase I: Develop set of relevant variables
- Develop initial set of generic benefits, costs, consequences of restraint, and actions
- Conduct a seminar in DC area involving review of initial variables sets by counter-terrorism experts
- Synthesize seminar inputs and develop an annotated briefing for DSWA review and possible presentation to JCS

Phase II: TBD after evaluation of step 3 above

Objective

Explore potential utility of Deterrence Analytical Framework for use in analyzing non-state actor WMD deterrence. Develop initial data and variable requirements for use in is manner.

Customer:	DSWA, LTC Perrone
SAIC Principal Investigator:	Michael S. Elliott, (402) 293-5285 POC: Greg Weaver, (619) 546-6710

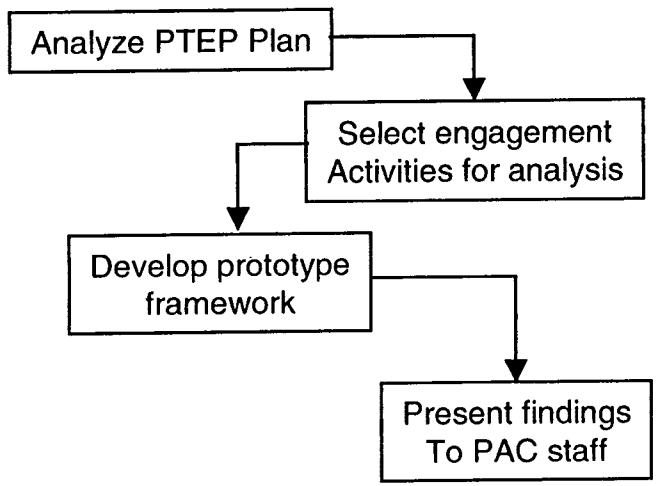
Deliverables

- Non-state actor Benefit and Cost variables lists
- "Generic" postulated Consequences of Restraint for non-state actors
- Representative set of "generic" deterrent actions for analysis

Benefits

Evaluates the applicability of the Deterrence Analytical Framework to the problem of deterring non-state actors from using WMD.

Chart A-12. Subtask 2.7 – Non-State Actors.



Approach

In cooperation with PACOM J-5 staff:

1. Identify CINCPAC WMD proliferation and deterrence-related theater, regional, & country objectives from TEP Strategic Concept paper.

2. Develop list of engagement activity categories for analysis.

3. Develop prototype framework for analysis of activity impacts on proliferation and deterrence objectives and test

Objective

Assist USPACOM J-5 in development of a prototype analytical framework for assessing the impacts of theater engagement activities on WMD proliferation and deterrence.

Customer:	DSWA/OPSFC LTC Paul Perrone (703) 325-1688
SAIC Principal Investigator:	PI: Mr. Mike Elliott (402) 293-5285 Lead Analyst: Mr. William Frizell (808) 831-1812

Deliverables

1. Annotated briefing presenting and describing the use of the prototype analytical framework.

2. A test application of the prototype framework of limited scope using real world data.

Benefits

Provide USPACOM J-5 with a prototype analytical tool with which to assess the WMD deterrence and proliferation impacts of planned and proposed Theater Engagement Activities in support of the Theater Engagement Planning Process.

Chart A-13. Subtask 2.8 – Analytical Support to Pacific Theater Engagement Planning.

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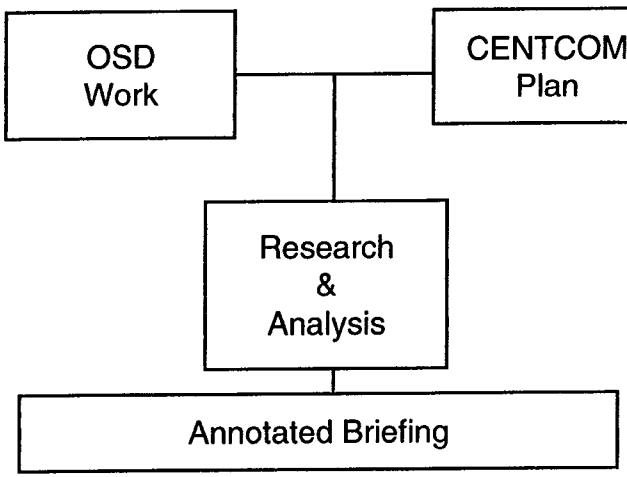

Approach

1. Review recent Iraqi WMD OSD/Policy analysis for applicability to CENTCOM mission and OPLANs.
2 Using the OPLAN action elements, assess each for impact on Iraqi WMD use decision .
3. Prepare annotated briefing.

Objective

Evaluate CENTCOM's Deterrence Effectiveness vs an Iraqi CW/BW use decision.

Customer:	CENTCOM J-5
SAIC Principal Investigator:	Mr. Mike Elliott (402) 293-5285 POC: Mr. Gregory Weaver, (619) 546-6710

Deliverables

Annotated Briefing

Benefits

Identify specific aspects of current OPLAN's that impact (positively or negatively) an Iraqi CW/BW use decision in a conflict situation.

Chart A-14. Subtask 2.9 – CENTCOM Deterrence Analysis.

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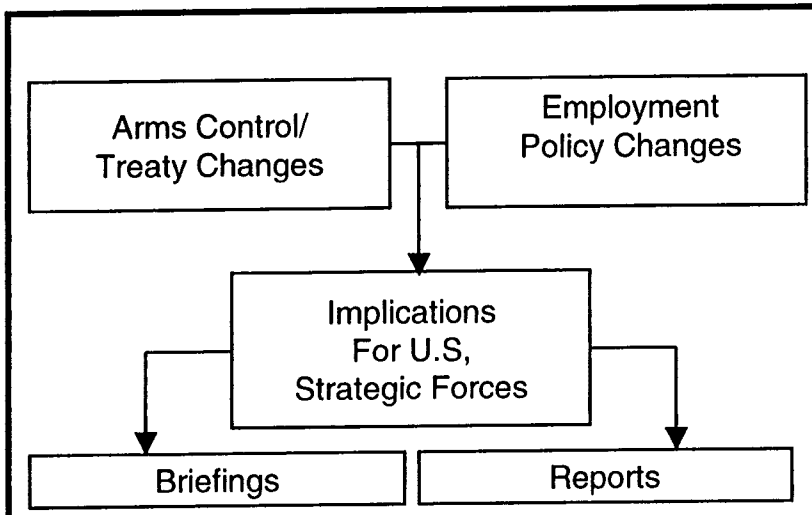

Approach

- Discuss analytical objective with J51 POC or representative
- Develop analytical approach and J51 concurrence
- Data collection and analysis
- Report/briefing preparation
- Presentation/Delivery of results

Objective

Assess implications of arms control treaties/ employment policy changes on US Strategic force effectiveness.

Customer:	USSTRATCOM/J51 Col David Lopez POC
SAIC Principal Investigator:	Mr. Michael Elliott 402-293-5285

Deliverables

- Annotated Briefings
- Written Reports

Benefits

Improves technical depth and responsiveness adapted to meet dynamic requirements.

Chart A-15. Subtask 3.1 – USSTRATCOM/J51 Analytical Support.

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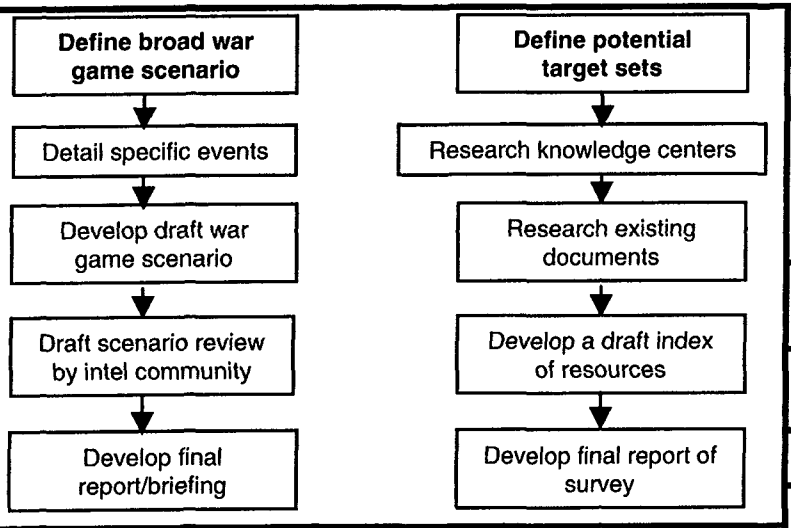

Approach

- Develop War Game Scenario
  - Define broad war game scenario
  - Detail specific scenario events
  - Develop draft report
  - Intelligence Community Review
  - Develop final report/briefing slides
- Survey Information Resources
  - Define potential target sets
  - Research knowledge centers
  - Research extant documents
  - Draft index of resources
  - Complete final report of survey

Objective

1. Develop a classified war game scenario suitable for RPB use in development of RISOP guidance.
2. Survey sources of information available for use in development of a blue target base using RISOP planning guidance.

Customer:	USSTRATCOM/J533, Lt Col Scott Goehring, (402) 294-5531
SAIC Principal Investigator:	Michael S. Elliott, (402) 293-5285 POC: Roger Craver, (402) 293-5225

Deliverables

- Detailed war game scenario
  - Microsoft Word Document for RPB
  - Microsoft Powerpoint Presentation for RPB
- Report listing extant information sources relating to development of a blue target list
  - Microsoft Excel spreadsheet
  - Cover letter of explanation

Benefits

- Outline DSWA proposal to update current RISOP scenarios and present ideas to support and enhance RPB guidance development.
- Determine availability of government or commercial resources available to research and develop an updated blue target list based on RPB guidance documents.

Chart A-16. Subtask 4.1 – RISOP Support.

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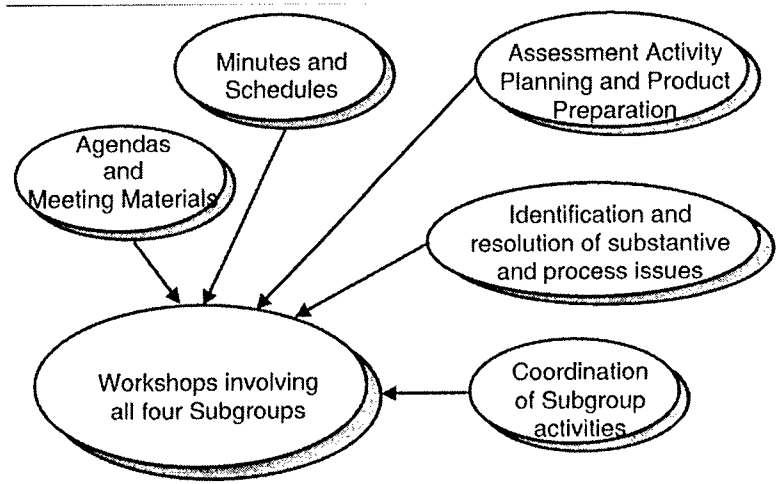

Approach

- Preparation of agendas and materials for STWG joint Subgroup meetings
- Preparation of minutes and schedules
- Assistance in assessment activity planning and product preparation
- Identification and resolution of substantive and process issues
- Assistance in the coordination of Subgroup activities

Objective

To provide support services to the Special Targets Working Group (STWG) and Subgroup panels in providing comprehensive, end-to-end, capabilities assessments.

Customer:	Mr. Greg Hulcher, OSD Acq.
SAIC Principal Investigator:	PI: Dr. Allen K. Rachel (619) 546-6397 POC: Mr. Paul Groover (703) 978-6759

Deliverables

- Meeting Support
- Two or more workshops involving the four Subgroups

Benefits

- Provide interface between DNA and Special Targets Working Group
- Provide focused interface between DNS, STWG, and appropriate offices within the intelligence community
- Facilitate support to STRATCOM's Strategic Futures 2 program in the assessment of operational utility of emerging technologies, emerging systems, and selected ACTDs.

Chart A-17. Subtask 7.1 – Special Targets Working Group Support.

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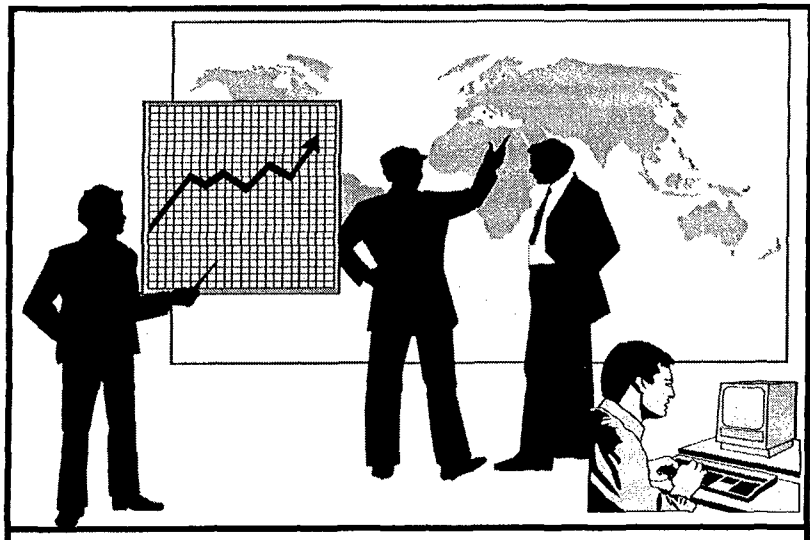

Approach

- Review national level guidance, internal directives, and current nuclear targeting procedures used during SIOP development.
- Research and catalogue relevant course support materials.
- Develop tentative course outline.
- *Course outline review/approval.*
- Develop tentative lesson modules.
- Lesson modules reviewed/approved.
- Develop lesson materials/media.
- Course presentation/approval.

Objective

Analyze nuclear targeting procedures to develop a comprehensive training program designed to provide staff officers with an in-depth *understanding of targeting goals and objectives*, nuclear damage mechanism, and the end-to-end targeting process.

Customer:	USSTRATCOM/J521/Col Blackmore, Chief, Target Selection Branch, (402) 294-2258
SAIC Principal Investigator:	Dr. Allen K. Rachel (619) 546-6397 POC: Mr. Michael S. Elliott (402) 293-5285

Deliverables

- Syllabus
- Lesson Plans
- Visual Aids
  - Hard Copy
  - *Magnetic Media*

Benefits

Provide a method of rapidly training nuclear targeting personnel to counter significant staff turnover and loss of experienced targeting personnel. This course will reduce the total time required to attain a fully qualified status, thereby increasing productivity in the Strategic Target Plans Division.

Chart A-18. Subtask 7.2 – Nuclear Targeting Course Analysis.

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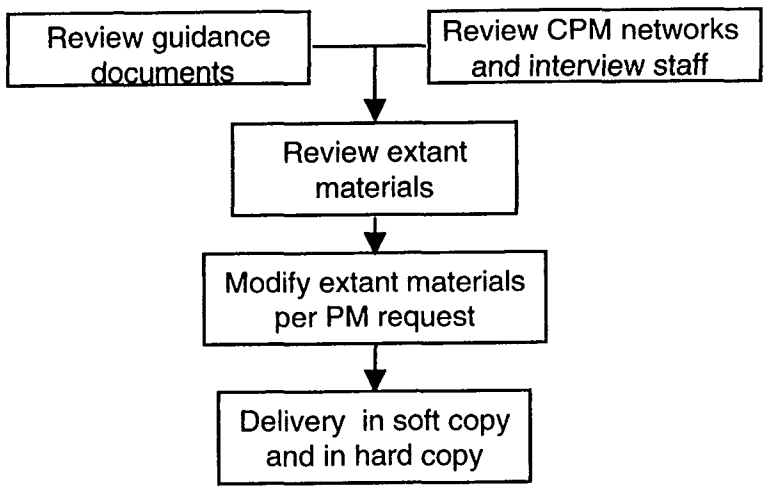

Approach

- Perform a quarterly review of materials and identify changes needed to meet currency objectives
  - Analyze guidance documents
  - Validate processes and tools through CPM review with staff
  - Update changed materials in soft copy and hard copy
- Respond to J521 requested modifications when approved by CTM

Objective

Analyze changes to nuclear targeting process as performed by USSTRATCOM and provide changes to extant nuclear targeting training materials.

Customer:	CAPT R.R. Stark, USN,Chief, USSTRATCOM, Strategic Plans Division (402) 294-6984
SAIC Principal Investigator:	Mr. Michael S. Elliott, (402) 293-5285 POC: Mr. Paul H. Berg, (402) 293-5252

Deliverables

Updated training materials in soft copy and hard copy documents.

Benefits

- Provide highly responsive and efficient analytical assessment of nuclear targeting function to maintain critical training materials.
- Maintain nuclear targeting expertise.

Chart A-19. Subtask 7.3 – Maintenance of Nuclear Targeting Training Materials.

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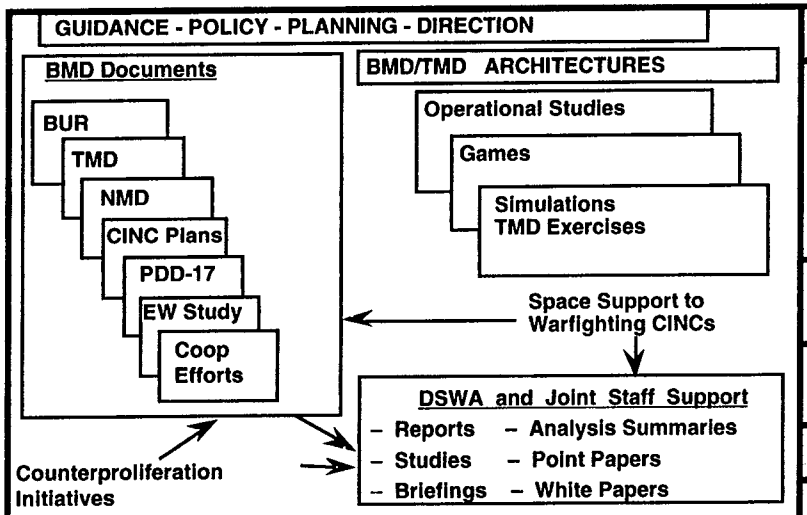


Approach

- Technical and analytical support related to operational deployment of Ballistic Missile Defenses (BMD) and BMD cooperative programs to address capabilities to respond to proliferation of WMD/NBC weapons and associated delivery systems.
- Develop supporting rationale for potential cooperative efforts with allies, friends, and other recipients (i.e., early warning, Theater Missile Defense {TMD} exercises, etc.).
- Provide reports, studies, and papers on TMD and TMD technology cooperation. Assess overall benefits and risks to warfighting CINC's capabilities.
- Assess ABM/TMD Demarcation issues on strategic forces.
- Support U.S.-Russia Defense Consultative Group initiatives.
- Examine National and DoD Space Policies to ensure enhanced space support to warfighters.

Objective

- Technical and analytical support to DSWA CINC Support Section and Joint Staff in addressing BMD, BMD cooperation, space support to warfighters, offense-defense integration, and counterproliferation.
  - Provide reports, technical summaries, point papers, etc.
  - Technical and analytical inputs to support Joint Staff positions.
  - Review documentation and provide technical evaluations.
  - Provide issue analyses as requested.

Customer:	LTC Paul Perrone (OPSFC), 703-325-1688 Col Mark Homrig (J-5), 703-693-0490
SAIC Principal Investigator:	Mr. Mike Elliott, PI, 402-293-5285 Mr. Norm Fennelly, POC, 407-779-6017

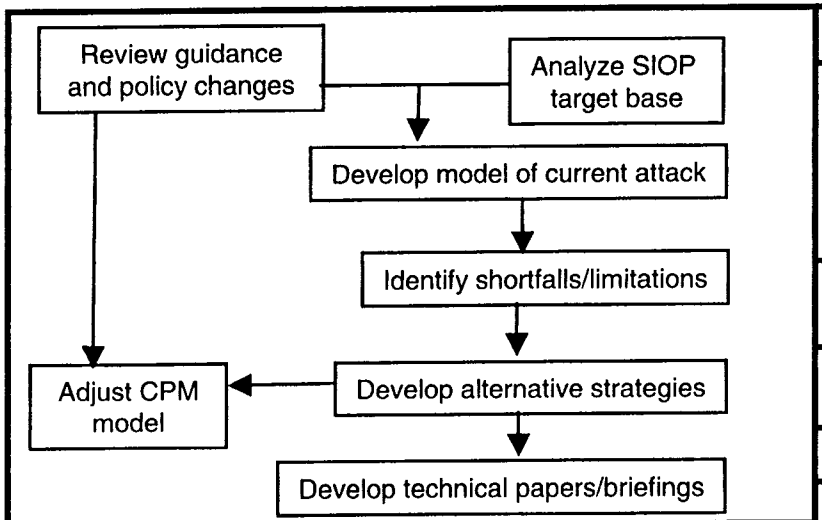
Deliverables

- Upon request, the following will be provided: reports, studies, briefings, analysis summaries, point papers, and white papers.

Benefits

- Provides knowledgeable support to DSWA and the Joint Staff in assessing issues dealing with BMD, BMD cooperation, offense-defense integration, space support to warfighting CINCs, and counterproliferation initiatives.
- Permits rapid and thorough response to time critical issues by DSWA and the Joint Staff.

Chart A-20. Subtask 8.2 – DSWA Support to the Warfighting CINCs and the Joint Staff J-5.



Approach

- Outline guidance pertaining to the target area
- Outline appropriate data sets for retrieval.
- Review and analyze data retrievals and compare results with established MOEs.
- Analyze ability of current plan to meet objectives
- Document shortfalls or limitations of strategy
- Develop alternatives to improve shortfalls, efficiency of attack, or overcome limitations
- Review guidance driven reporting requirements.
- Assist staff with analysis and preparation of command level briefings for both SIOPs 99 and 00

Objective

Provide technical analysis to estimate the SIOP's ability to meet guidance objectives for concept development, force application, and assessment phases; analyze alternative weapon allocation/application strategies; and support development of annotated command briefings for reporting. Provide technical support to adjust extant CPM model of planning process in response to changes.

Customer:	USSTRATCOM: CAPT R.R. Stark, USN,Chief, Strategic Plans Division (402) 294-6984
SAIC Principal Investigator:	Michael S. Elliott, (402) 293-5285 POC: Michael S. Elliott, (402) 293-5285

Deliverables

Technical papers and briefings as required.

Benefits

Provide highly responsive and efficient analytical impact assessment of current strategy and proposed changes to allocation/application strategies, guidance, and force structures.

Chart A-21. Subtask 8.3 – Analyze Alternative Employment Options.

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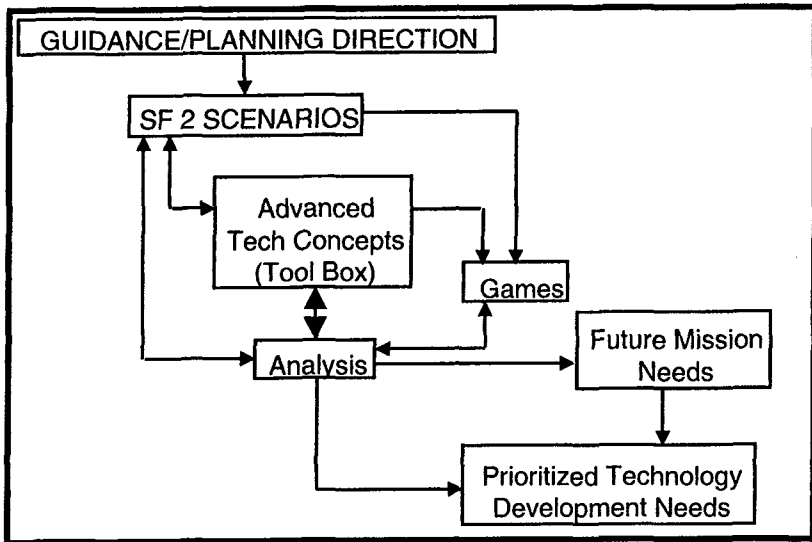

Approach

- Identify recommended scenarios developed by use of the structured analysis presented/amended on 16 March 1994.
- Obtain SAG approval of prioritized list of scenarios.
- Develop detailed scenarios for gaming and the related vignettes and tool box composition.
- Customize game design to stress selected scenarios.
- Pre-test game design and data collection methods against specific scenario/tool box combinations.
- Administer October 94 SAG game.
- Analyze and report results/recommendations.

Objective

Design, develop, and conduct a SAG seminar game to support STRATCOM in correlating future strategic mission requirements with technology acquisition opportunities.

Customer:	Captain (USN) Richard J. Field STRATCOM SAG Secretariat, (402) 294-4102
SAIC Principal Investigator:	Dr. Allen K. Rachel (619) 546-6397

Deliverables

- Scenario selection methods
- An Album of detailed candidate scenarios
- Game design and related materials
- Analysis of game results
- Prioritized list of potential mission needs
- Prioritized technology acquisition requirements

Benefits

- Provides an institutionalized approach to analysis of ever changing threat scenarios and mission capability needs.
- Provides an analytical basis to support user prioritization (user pull) of technology development and related ACTD's.

Chart A-22. Subtask 9.1 – STRATEGIC FUTURES 2: Analysis.

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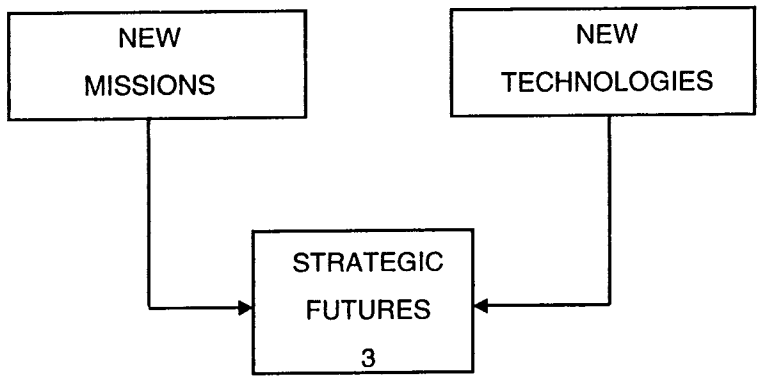

Approach

- Build on SF 2-94
  - Operational Military Tasking (OMT)
  - Technology Toolbox reference
  - Simplify logistics/game materials
- Narrow focus
  - Counterproliferation
  - Selected target sets
  - Deterrence impact
- Maintain seminar team format
- Continuing FTWG/SAG involvement

Objective

To systematically correlate future strategic mission requirements with science and technology opportunities, including conducting planning games to test the utility of future mission needs and their corresponding technology solutions.

Customer:	USSTRATCOM - LCDR Jerry Anderson (402) 294-4102
SAIC Principal Investigator:	Dr. Allen K. Rachel (619) 546-6397

Deliverables

Planning games in the fall of 1995:

- Dry Run Game - 22 August
- Dry Run Game - 14 September
- Final SAG Game - 18 October

Benefits

Force Structure/Force Posture/Policy recommendations to enhance STRATCOM deterrence effectiveness across a diverse set of threat scenarios.

Chart A-23. Subtask 9.2 – STRATEGIC FUTURES 3.

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Subtask 9.3

This Subtask Number Was Deleted And Never Used.

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Subtask 9.4

Activities Were Transferred To Subtasks 9.5 And 9.6.

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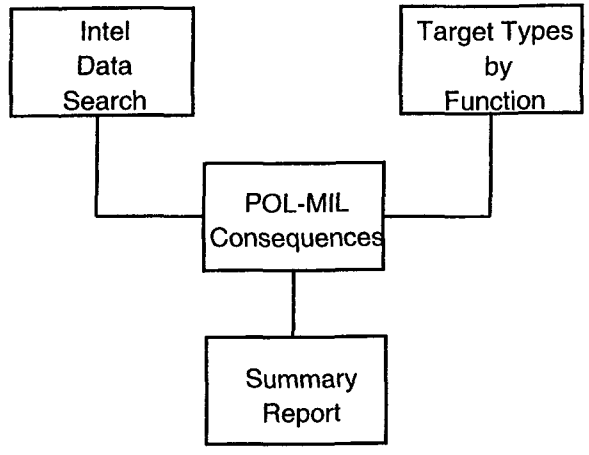


Approach

1. Gather relevant intelligence data on target sets of interest to STRATCOM and NCA (based on guidance)
2. Categorize types of Hard/Buried targets by function (e.g., C4I, WMD storage,etc.)
3. Assess political-military consequences of failing to hold these target types at risk across a set of issues, including:
   - A. Impact on Proliferation
   - B. Impact on Deterrence
   - C. Impact on Coalition Formation/Cohesion
   - D. Impact on Damage Limitation/Escalation Control
   - E. Impact on MCA Options re: war aims and war termination
4. Summarize consequences in briefing format

Objective

Analyze and present to the STRATCOM SAG the potential political-military consequences of U.S. inability to hold various kinds of hard/buried targets at risk. Provide insight into the need for penetrating nuclear weapons to hold such targets at risk.

Customer:	USSTRATCOM/J-502 Ms. Kerry Kelley (402) 294-8117
SAIC Principal Investigator:	PI: Dr. Allen K. Rachel (619) 546-6397 Lead Analyst: Mr. Greg Weaver (619) 546-6710

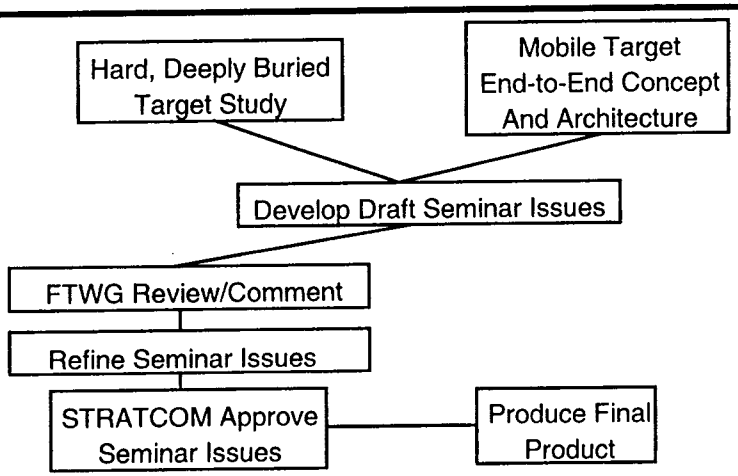
Deliverables

1. Facing page text briefing
2. Briefing presentation at October 1996 SAG meeting

Benefits

1. Detailed understanding of the consequences of a lack of hard/buried target attack capability.
2. Provide analysis of the political-military consequences of permitting hard/buried sanctuary for STRATCOM SAG review and critique.

Chart A-24. Subtask 9.5 – Political-Military Consequences of Permitting Hard/Buried Sanctuary.



Approach

- Review proposed hard, deeply buried target presentation and supporting materials.
- Review mobile target end-to-end concepts and architectures presentation and supporting materials.
- Develop first draft of planning, policy, and technologically oriented seminar issues.
- Present first draft to FTWG for comment.
- Refine seminar issues.
- Develop seminar issues in final form, for USSTRATCOM approval.
- Produce and deliver final product.

Objective

In collaboration with the USSTRATCOM staff, develop seminar issues relating to political-military capabilities impacting US employment capability for consideration by the Scientific Advisory Group 9SAG) Fall, 1996.

Customer:	USSTRATCOM/J-502 Ms. Kerry Kelley (402) 294-8117
SAIC Principal Investigator:	PI: Dr. Allen K. Rachel (619) 546-6397 POC: Mr. Michael S. Elliott (402) 293-5285

Deliverables

- Strategic Futures 4 Seminar Issues in approved USSTRATCOM format (hard copy/magnetic media)
  - Hard, Deeply Buried Target Seminar
  - Mobile Targets End-to-End Concept architecture

Benefits

Provide a time efficient tool to enhance the SAG process by clearly defining relevant issues that SAG members should consider, as a minimum, when evaluating the Hard, Deeply Buried Targets and Mobile Targets presentations.

Chart A-25. Subtask 9.6 – Develop Seminar Issues for SF4.

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Objective

Provide FAS/CIVIC on-site maintenance support to STRATCOM personnel for one week and provide FAS/CIVIC program maintenance support until 30 June 1995.

Customer:	STRATCOM/J531, LT Ron Hanson, (402)294-1913
SAIC Principal Investigator:	Dr. Allen K. Rachel, (619) 546-6397 POC-Mr. Gene Swick, (619) 546-6487

Deliverables

- Summary report of FAS/CIVIC discrepancy reports and their resolution
- Modified FAS/CIVIC software

Approach

- Establish suitable time for on-site maintenance support
- Load software on STRATCOM workstation(s)
- Provide four days of on-site maintenance
- Establish format for recording discrepancy reports
- Record reported discrepancies and their resolution
- Deliver modified software

Benefits

- Provides for a more robust FAS/CIVIC program
- Insures that system configuration is identical at STRATCOM and SAIC

Chart A-26. Subtask 11.1 – STRATCOM FAS/CIVIC Support.

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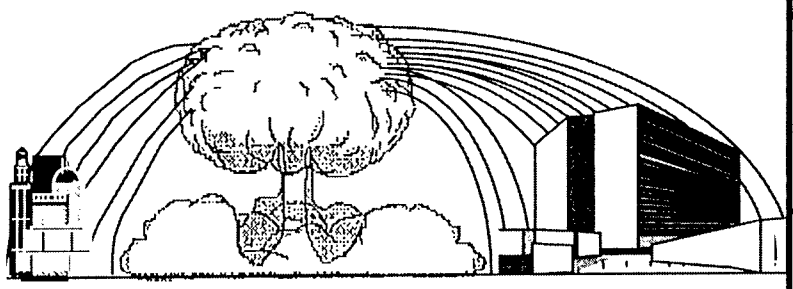

Objective

To determine the utility of developing a methodology/MOE for STRATCOM that includes the impact of fallout effects in achieving effective denial or delay of enemy access to key installations as a result of US nuclear strikes, with a view to using fewer weapons or smaller yields than are required when prompt effects alone are considered.

Customer:	STRATCOM J53, CDR Carrasco (402) 294-5837
SAIC Principal Investigator:	PI: Dr. Allen K. Rachel (619) 546-6397 POC: Mr. Roger H. Craver (402) 291-2233

Approach

- Coordinate basic parameters with J531
- Obtain TDI extracts of areas to be examined
- Do target selection; review with J531
- Build DGZ's
- Assess HOB options
- Calculate casualties and fatalities
- Examine costs vs. benefits
- Prepare briefing report
- Deliver methodology, provide familiarization

Deliverables

- Briefing report for STRATCOM
- Computer-based denial methodology
- Familiarization of STRATCOM personnel with the computer program

Benefits

- Ability to include the impact of fallout as well as prompt effects on denying or delaying enemy access to their facilities
- Potential use of lower prompt damage criteria while still achieving desired access denial or repair delays
- Potential reduction in number of DGZ's/weapons needed

Chart A-27. Subtask 11.2 – Radiation Effects Phase II.

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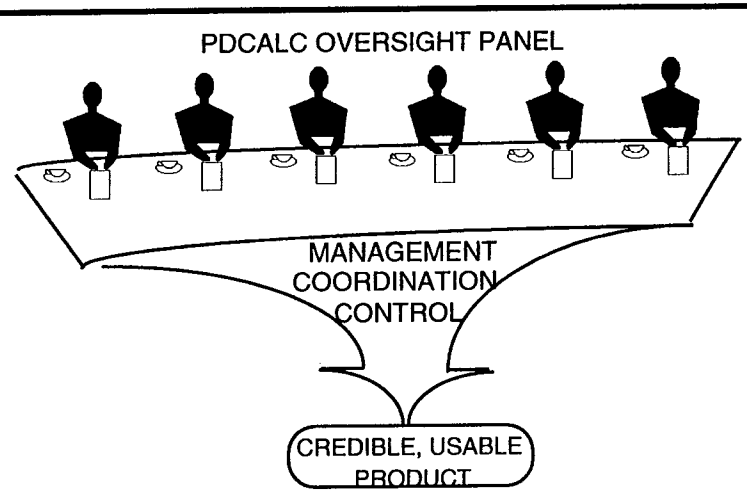

Approach

- Set goals and objectives
- Establish modus operandi
- Identify the "official" version of the code
- Monitor and assist in code evolution
- Do essential code modernization fixes
- Provide a means to identify user needs
- Manage and control distribution of changes
- Keep the membership informed and current

Objective

To establish and operate a Users' Group for the modernization, management, control and distribution of the official PDCALC code for all legitimate users, and to ensure the code remains credible and usable.

Customer:	Mr. Lee Jaramillo, STRATCOM J532 (402) 294-5307
SAIC Principal Investigator:	Michael S. Elliott (402) 293-5285 POC : John Pruett (402) 293-5266

Deliverables

- Administrative and security management:
  - Appropriate Terms of Reference
  - Information to and orientation of new members
  - Scheduling of meetings, preparation of briefings, distribution of newsletters and minutes
- Assistance in code modifications (Examples):
  - Groundshock coupling for DBT's (G VN methodology)
  - Incorporation of new effects/damage data (OGA 2800-23-92)
  - Addition of Equivalent Target Area (ETA) modification
  - Inclusion of HOB Cutoff "math fix"

Benefits

- Avoidance of proliferation of unofficial versions of the code
- Orderly access to user needs and recommendations
- Improved ability to coordinate and distribute code changes
- Availability of a modernized, utilitarian code

Chart A-28. Subtask 11.3– PDCALC Users' Group.

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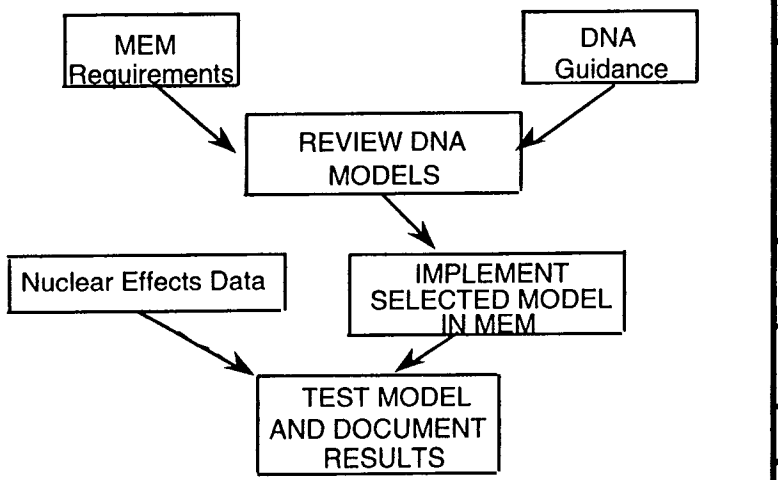

Approach

- Review MEM requirements for Fireball Clutter and EMP Environments
- Review DNA Models and Select Appropriate Model for Systems Level Code
- Develop and Test MEM Interface Routines
- Provide USSTRATCOM Model and Documentation

Objective

Provide a systems level Fireball Clutter and EMP Environment for the Multiple Engagement Model (MEM) based on the latest DNA models

Customer:	LT C. Brown, USSTRATCOM/J-535 (402) 294-1975 Maj Langer, USSSTRATCOM/J5231 (402 294-83004
SAIC Principal Investigator:	PI Dr. Allen C. Rachel (619) 546-6397 POC Dr. Bobby J. Morton (619) 546-6364

Deliverables

- Provide Fireball Clutter and EMP Model Routines for Implementation in MEM Code
- Provide Descriptive Documentation and Validation for Both Models

Benefits

Install current DNA approved state-of -the art EMP and clutter models in MEM. Allows STRATCOM to analyze NWE environments that may potentially impact operations in STRATCOM supported regional and strategic scenarios. Directly applicable to TMD counter proliferation scenarios.

Chart A-29. Subtask 11.4– Fireball Clutter & EMP Models for MEM.

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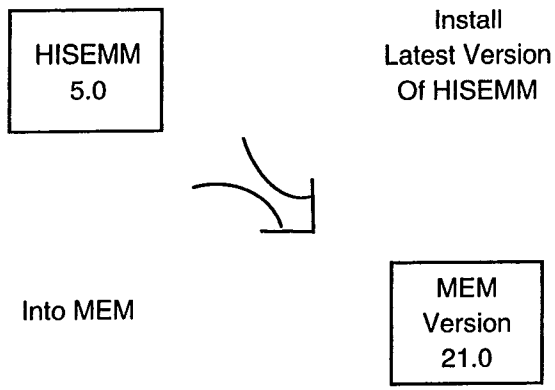

Approach

- Interface HISEMM 5.0 with current MEM standalone driver
- Compare HISEMM 3.2 an 5.0 results for bursts of interest to USSTRATCOM using driver
- Determine if current 3.2 errors have been corrected in version 5.0 of HISEMM. If not, resolve problems with HISEMM developer (MRC)
- Install HISEMM 5.0 into MEM 21.0 and deliver with scheduled delivery for MEM 21.0

Objective

Upgrade the version of HISEMM used by MEM from 3.2 to 5.0 and resolve any version 3.2 errors not corrected by the new version.

Customer:	USSTRATCOM/J53 Col T. Nelson (402) 294-3251 POC: Capt R. Belyan J534 (402) 294-1493
SAIC Principal Investigator:	PI: Dr. Allen K. Rachel (619) 546-6397 POC: Dr. B. Morton (520) 5707687

Deliverables

- Comparisons between MISEMM 3.2 and 5.0 generated results
- HISEMM 5.0 installed in MEM 21.0

Benefits

- Upgrade MEM NWE to use latest HISEMM code
- Resolve errors which occur using version 3.2 of HISEMM

Chart A-30. Subtask 11.5– HISEMM Upgrade into MEM.

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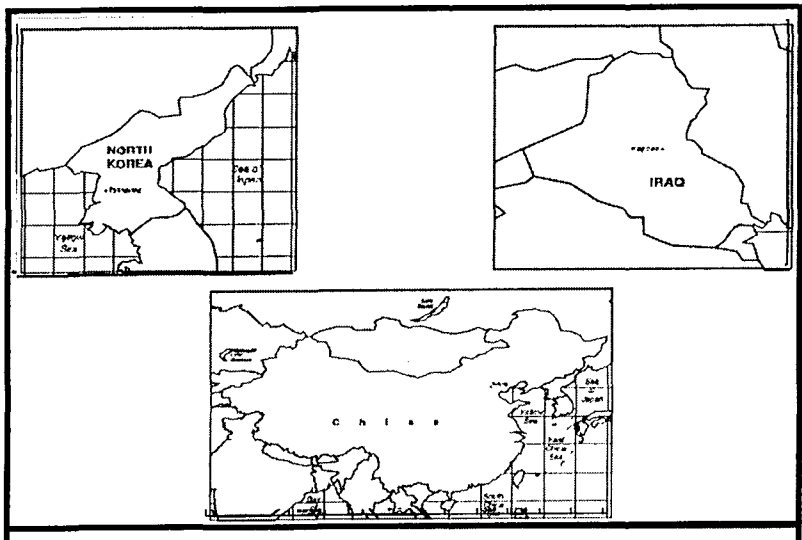

Approach

- Obtain population data for countries of interest
- Determine structure types applicable to countries; check VN's
- Develop distribution of population by shelter type
- Select appropriate scenarios (level of warning)
- Determine PF's and assign distributions
- Prepare report

Objective

To develop fallout protection factor distributions for North Korea, Iraq and the Peoples Republic of China.

Customer:	Commander Scott Bawden, USN STRATCOM J532 (402)294-1913
SAIC Principal Investigator:	Michael S. Elliott (402) 293-5285 POC: Tom Moates (402) 291-2233

Deliverables

Annotated briefing reports describing PF methodology and distributions for :

- North Korea
- Iraq
- PRC

Benefits

Availability of updated fallout protection factors on which to base estimates of fallout calculations

Chart A-31. Subtask 11.6– Fallout Protection Factor Distributions.

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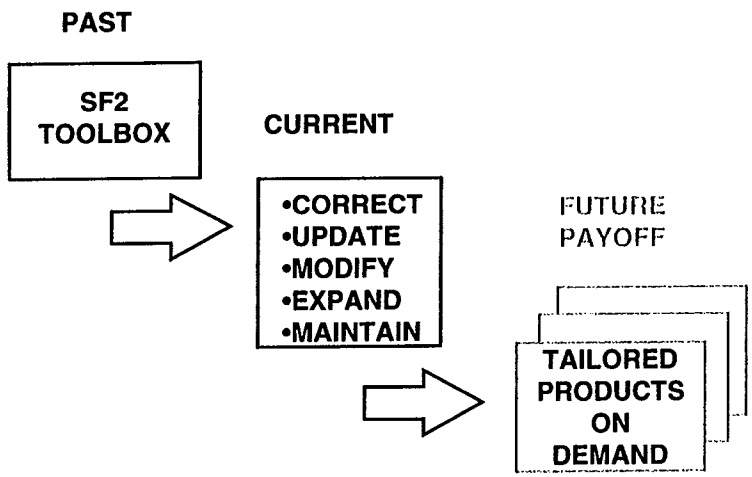

Approach

- Build on past work
- Modify STRATCOM SF3 "Toolbox" as required
- Leverage existing product against future projects
- Focus on strategic applications
- Emphasize technology contribution to counterproliferation
- Keep pace with changing acquisition environment, changes in program status

Objective

Develop and maintain a compendium of advanced technologies/technology programs applicable to strategic counterproliferation missions.

Customer:	Mr. Dave Anderson Hq, Defense Nuclear Agency
SAIC Principal Investigator:	Dr. Allen K. Rachel (619) 546-6397

Deliverables

A body of technical data arrayed in presentation format permitting generation, on demand, of products tailored to the needs of the Defense Nuclear Agency, USSTRATCOM, other CINCs and DoD agencies.

Benefits

Permits flexible and responsive DNA support of the DoD acquisition process, U&S Staffs, OSD offices/agencies, avoids costly short-notice data collection efforts, provides ready material for seminars, games, and initial starting point for trade studies.

Chart A-32. Subtask 12.1– Strategic Counterproliferation Technology Compendium.

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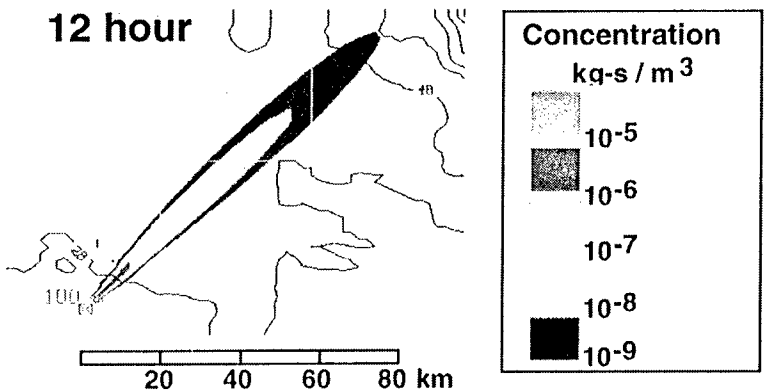
Anthrax Footprint



Approach

- Provide USSTRATCOM with copy of Dr. Ullrich's collateral effects prediction footprints previously given to the DNA SAG
- Provide USSTRATCOM with SOA collateral effects prediction codes through direct interaction between USSTRATCOM and DNA/SPWE

Objective

- Quick reaction support to USSTRATCOM to provide collateral effects estimates for chemical/biological agent dispersal due to weaponeering a chem/bio production facility
  - Provide chem/bio footprints for a series of Silverbook targets
  - Put USSTRATCOM in touch with DNA/SPWE personnel to install DNA's collateral effects prediction codes atUSSTRATCOM

Customer:	Maj Bush (OPNA), 703-325-1137 Adm Childs, USSTRATCOM
SAIC Principal Investigator:	Dr. Allen Rachel, PI, 619-546-6397 Mr. Gil Binninger, POC, 703-683-6242

Deliverables

- Collateral effects footprint charts previously presented by Dr. Ullrich at the DNA SAG meeting

Benefits

- Provides quick reaction support to USSTRATCOM question regarding collateral effects due to weaponeering a chem/bio production facility
- Puts USSTRATCOM directly in touch with DNA/SPWE for installation of state-of-the-art collateral effects prediction models

Chart A-33. Subtask 13.1– Quick Reaction Collateral Effects Estimates.

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Objective

Present the "Threats Involving a Few Nuclear Weapons" briefing to the NATO Nuclear Planning Group's annual symposium and nuclear consultation exercise. Purpose is to provide substantive introduction to technical and political-military issues regarding the use of a few nuclear weapons against Allied forces.

Customer:	Mr. Greg Shulte, Director NATO NPG
SAIC Principal Investigator:	Mr. Greg Weaver, SAIC 619-546-6710

Deliverables

A 45-60 minute briefing, modified to meet NATO interests and sensitivities, that is excerpted from the larger "Threats Involving a Few Nuclear Weapons" briefing.

Approach

In consultation with the Director of the NATO Nuclear Planning Group (NPG), we will excerpt and modify portions of the "Threats Involving a Few Nuclear Weapons"briefing to meet the NPG's needs. The PI will travel to the NATO NPG's annual symposium in Luxembourg on March 6th and 7th and present the modified briefing as the keynote presentation of the meeting.

Benefits

Provides direct support to the NATO NPG's nuclear consultation exercise by ensuring the participants recognize the military potential of the use of a few nuclear weapons by a regional adversary, and the political-military and deterrence issues raised by that military potential. Highlights the continued importance of detailed understanding of nuclear effects and the role of nuclear weapons in NATO security strategy.

Chart A-34. Subtask 13.2– SHAPE Support.

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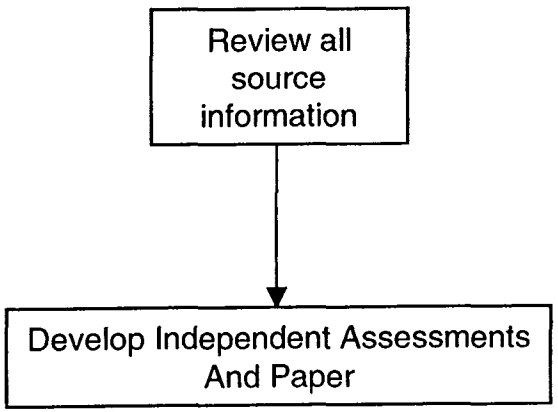

Approach

Phase 1. Develop possible alternate Russian futures based on current activities
Phase 2. TBD

Objective

Assess current state of affairs in Russia and develop possible alternate futures based on best available information

Customer:	Phase I: DSWA, LTC Perrone
SAIC Principal Investigator:	Mr. Michael S. Elliott, (402) 293-5285 POC: Mr. Berg, (402) 293-5232

Deliverables

•Short Paper(s).

Benefits

Stimulate thought on potential Russian futures and the implications for the US

Chart A-35. Subtask 13.4– QR-Alternate Russian Futures.

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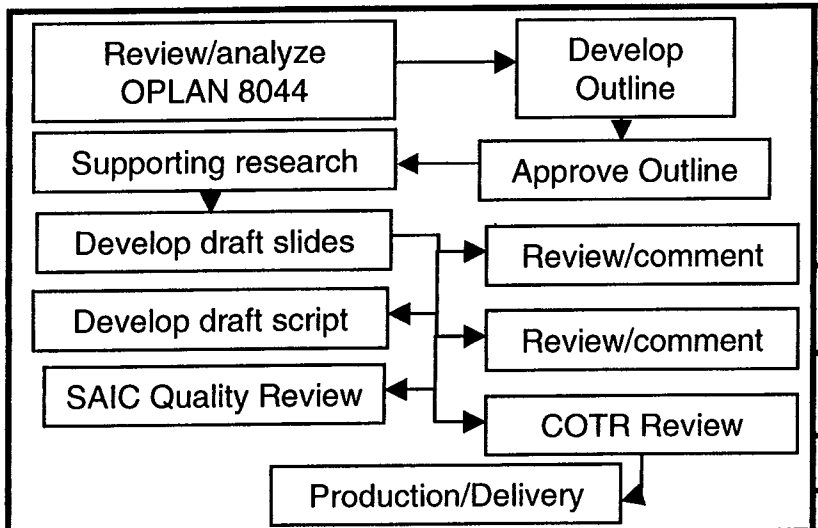

Approach

- Review and analyze OPLAN 8044
- Develop a briefing outline
- Customer review/approve outline
- Perform supporting research as required
- Develop draft slides
- Customer review/comment
- Develop draft script
- Customer review/comment
- Internal peer quality review
- COTR review/comment
- Final delivery

Objective

Review USSTRATCOM OPLAN 8044 actions to develop an informational overview of roles, responsibilities, requirements, and relationships mandated by the OPLAN.

Customer:	USSTRATCOM/J371, Lt Col Snyder 402-294-4208
SAIC Principal Investigator:	Mr. Michael S. Elliott, (402) 293-5285 POC: Mr. Berg, (402) 293-5232

Deliverables

- An annotated Powerpoint briefing suitable for presentation to staff officers, supporting agencies, and senior leadership.
  - Bound color notes pages (5 copies)
  - Electronic media- Powerpoint 97 (5 copies)

Benefits

Improved understanding of OPLAN 8044

Chart A-36. Subtask 13.5– OPLAN 8044 Analysis.

Appendix B

Program Management Plan

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DEFENSE THREAT REDUCTION AGENCY

TASK AREAS (SAIC Task Leader)	SUB	CY97 11 12 | CY98 1 2 3 4 5 6 7 8 9 10 11 12
		Management Reserve
1. Adaptive Planning	001	
1.1 Analyze SIOP Effect	101	Completed March 1997
1.2 CPM Networks	201	Continued under SN/WMD Operational Support
1.3 Theater Process Rev	301	Continued under SN/WMD Operational Support
1.4 MTAP	401	▲---------▲
1.5 Theater Data Reqts	501	Continued under SN/WMD Operational Support
2. Deterrence and Military Capabilities	002	
2.1 Forward Presence	002	Completed November 1994
2.2 Fut Naval Deterrence	202	Completed December 1995
2.3 Deter Framework	302	Continued under Subtask 2.4
2.4 WMD Deter (OSD)	402	Completed May 1998
2.5 USFK/PACOM Spt	502	See Subtask 1.3
2.6 Deter Spt/STRATCOM	602	▲---------▲
2.7 Non-State Actors	702	Continued under SN/WMD Operational Support
2.8 PACOM TEP Spt	802	▲---------▲
2.9 CENTCOM Spt	902	▲---------▲
3. Arms Control & Policy	003	
3.1 J51 Analytical Support	103	Continued under SN/WMD Operational Support
4. Offense-Defense Gaming and Models	004	
4.1 RISOP Spt: USSTRATCOM&RPB	104	▲———————▲
5. Low Yield Weapon Employment	005	

IP-In Progress; ID-In Development; C-Completed; SW-Stopped Work; CNX-Cancelled

Uncompleted △ Completed ▲

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TASK AREAS (SAIC Task Leader)	SUB	CY97 11 12	CY98 1 2 3 4 5 6 7 8 9 10 11 12
6. Alternate MOEs	006		
7. ACM & Low Yield Modelling	007		
7.1 STWG Spt	107	Completed June 1995	
7.2 Nuclear Tgt Course	207	Completed April 1997	
7.3 Mx of Tgt Tng	307	Continued under SN/WMD Operational Support	
8. Alternative Employment Options	008		
8.1 JCS/J-5 Analysis	108	Completed January 1997	
8.2 Spt to CINCs & J-5	208	Continued under SN/WMD Operational Support	
8.3 Analyze Alt Emp Opts	308	Continued under SN/WMD Operational Support	
9. Force Planning Options	009		
9.1 SF 2 Analysis	109	Completed December 1994	
9.2 SF3 (95)	209	Completed December 1995	
9.4 SF 4 (96)	409	Continued under Subtasks 9.5/9.6	
9.5 Pol/Mil HB Tgts	509	Completed November 1996: Re-opened to support PACOM/DSWA Conf	
9.6 Seminar Issue Dev	609	Continued under 9.5 as of September 1996	
10. Alternative C2 Systems	010		

IP-In Progress; ID-In Development; C-Completed; SW-Stopped Work; CNX-Cancelled

Uncompleted △ Completed ▲

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DEFENSE THREAT REDUCTION AGENCY

TASK AREAS (SAIC Task Leader)	SUB	CY97 11 12	CY98 1 2 3 4 5 6 7 8 9 10 11 12
11. NWE Modelling Integration	011		
11.1 STRATCOM FAS/ CIVIC Support	111	Completed June 1995	
11.2 Radiation Effects	211	▲	
11.3 PDCALC Panel	311	Continued under SN/ WMD Operational Support	
11.4 EMP in MEM	411	Completed December 1995	
11.5 HISEMM Upgrade	511	Completed November 1997	
11.6 Fallout PFD	611	Continued under SN/ WMD Operational Support	
12. Force Structure Development	012		
12.1 Toolbox Devel	112	Completed October 1996	
13. Quick Reaction Analysis	013		
13.1 Col Damage Effects	113	Completed 1994	
13.2 Shape Spt	213	Completed March 1994	
13.3 Deter Spt to USSTRATCOM	313	Completed March 1997	
13.4 Alternative Futures	413	Completed August 1998	
13.5 OPLAN 8044 Spt	513	Continued under SN/ WMD Operational Support	
Reserves for Overhead Variances	796		

IP-In Progress; ID-In Development; C-Completed; SW-Stopped Work; CNX-Cancelled

Uncompleted △ Completed ▲

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SUBJECT: The printing of, **DTRA-TR-99-16**, "Strategic Force Planning Support Program"

Referenced subject report was printed with an incorrect title on the Standard Form 298. The report has been determined to be Unclassified. The correct title should appear as follows:

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Request you distribute an errata with adhesive backing for easy installation. A distribution list and labels have been provided for your use. Your point-of-contact in this office is Miss Suzie Ballif, **(703) 767-4725.**

Sincerely,

Linda M. Powell

Linda M. Powell
Chief, Administrative Services
Division