

U.S. ARMY

**Center for
Army
Analysis**

REVOLUTION IN ANALYTICAL AFFAIRS - XXI

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13. ABSTRACT (<i>Maximum 200 Words</i>) This report discusses how the Army analysis community should change to improve its capability to meet the present and future analytical demands of its analysis customers. At the November 1997 Army Operations Research Symposium, LTG Heebner highlighted the ongoing revolution in business and military affairs and questioned whether there is or should be a corresponding revolution in analytical affairs. To answer LTG Heebner's inquiry, general officer level Army commanders and heads of major staff elements were interviewed to develop a description of customer analysis demands. Major post-Cold War changes in the analysis community were identified. Based on this information, along with an understanding of the underpinnings of current counterpart revolutionary changes in government, military, and commercial sectors, a proposal was developed for a revolutionary change in the Army analysis community—a proposal that is distinctly customer focused. This report discusses this proposed revolutionary change along with other supporting initiatives.				
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REVOLUTION IN ANALYTICAL AFFAIRS - XXI (RAA-XXI)**SUMMARY**

THE PROJECT PURPOSE is to determine what revolutionary changes are needed in the Army analysis community, i.e., a “revolution in analytical affairs.” How should the Army analysis community change to improve its capability to meet the analytical demands of its analysis customers in a decision environment of increased and changing demands and under the constraints of reduced resources?

THE PROJECT SPONSOR was the Deputy Under Secretary of the Army (Operations Research), Mr. Walter W. Hollis.

THE PROJECT OBJECTIVES were to:

- (1) Evaluate customer environment and analytical demands.
- (2) Identify key changes in the analytical environment, to include revolutionary initiatives that have already been implemented.
- (3) Identify future trends in customer, analytical, and technology environment.
- (4) Identify RAA-XXI initiatives with leveraging opportunities. Consider commercial and other government initiatives.

THE SCOPE OF THIS PROJECT is to cover the period of FY 89 (last year of Cold War) base year to present, with a focus on the Center for Army Analysis (CAA), TRADOC Analysis Center (TRAC), and Army Materiel Systems Analysis Agency (AMSAA) in evaluating changes to the analytical community and its customer environment. Consider other federally funded research and development centers (FFRDCs) and contractors. Address future trends over the next 10 years.

THE MAIN ASSUMPTION of this report is that the Army analysis community can leverage revolutionary changes to significantly advance its capabilities. Significant changes have already taken place, but they can be extended or additional changes can be advanced to further enhance analytical capabilities.

THE PRINCIPAL FINDINGS are that:

- (1) From the customer perspective, there is an ever-increasing demand for quick turnaround analysis. Today and tomorrow’s analytical demands are not only time-constrained, they are also of greater quantity and scope.
- (2) Today’s analytical community is smaller. It has fewer military and civilian personnel and smaller budgets.

(3) Productivity gains have kept the analytical output from declining in proportion to the resource declines. The leveraging of information technology and streamlined organizations and processes are some of the major productivity contributors.

(4) The key RAA initiative is to reinvent the customer to analyst interface by establishing a “strategic partnership” among analytical agencies and their customers whereby in-house analysts become integral team members of the customer environment. Customer input strongly supports the adoption of such an initiative.

THE PRINCIPAL RECOMMENDATIONS are that:

(1) Analytical agencies accelerate the trend of strategic partnering and fully embrace the strategic partnering concept with selected customers.

(2) As the concept matures, expand strategic partnering to include alliances with contractors, FFRDCs, and other analytical agencies, refine the organizational concept of the parent organization to provide support of the concept and formally recognize the importance of the roles of the analysts serving as strategic partners.

(3) Focus on information technology initiatives that can be leveraged to support the strategic partner concept and quick turnaround capability.

THE PROJECT EFFORT was conducted by a project team of Mr. Daniel J. Shedlowski, CAA, Mr. Dave Shaffer, AMSAA, and Ms. Margaret Fratzel, TRAC.

COMMENTS AND QUESTIONS may be sent to the Director, Center for Army Analysis, 6001 Goethals Road, Suite 102, Fort Belvoir, VA 22060-5230.

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1 INTRODUCTION

1.1 Background

The purpose of this report is to describe the results of an initiative called the Revolution in Analytical Affairs. The catalyst for this effort was the keynote address given by LTG Dave Heebner, Assistant Vice Chief of Staff of the Army, at the Nov 97 Army Operations Research Symposium which suggested the need for a revolution in analytical affairs that would parallel the more well-known revolutions in business and military affairs.

There have been profound changes in the business and military community that have been called “revolutionary.” Have there been, is there a need for, revolutionary changes in the Army analysis community?

The Deputy Under Secretary of the Army (Operations Research), Mr. Walter W. Hollis, formed a team of representatives from the “big three” of the Army’s analysis community, i.e., the Center for Army Analysis (CAA), TRADOC Analysis Center (TRAC), and the Army Materiel Systems Analysis Agency (AMSAA), to respond to LTG Heebner’s AORS address.

1.2 Overview

This report will cover the following topics:

- Background
- Where we are
 - Analytical Demands? (Customer Input)
 - Changes in Analytical Community (Community Input)
- Meeting current and future customer demands...
- A Revolutionary Initiative: “*Strategic Partnering*”
 - Supporting/enabling initiatives
 - Recommendations and Summary

In order to address any changes to the analytical community (the supplier of analysis), we must first understand the needs of the customer for analysis—the decision maker. This effort placed justified emphasis on the customer, since the overriding objective (as with any business) is to be responsive to customer needs.

After discussing customer needs and an overview of some of the major changes that have taken place in the analysis community, a proposal for a revolutionary initiative is addressed along with additional initiatives or enablers that support the proposed revolutionary action.

A glossary of the acronyms used in this report is contained in Appendix D.

1.3 Problem Statement

The problem statement for this project is:

How should the Army analysis community change to improve its capability to meet the analytical demands of its analysis customers?

- In a decision environment of increased and changing demands.
- Under the constraints of reduced resources.

It is a foregone conclusion that the Army analytical community needs to change. The environment of the decision maker or customer of analysis has and is changing at an ever-increasing pace since the end of the Cold War. Also, the resource constraints (people, budgets, etc.) of both the analytical community and the customer are changing.

The first challenge is to identify those major changes that have already occurred. This will serve as a foundation for identifying what additional changes need to take place in today's dynamic environment that would significantly leverage the capability to meet current and future customer demands.

1.4 Focus of Change

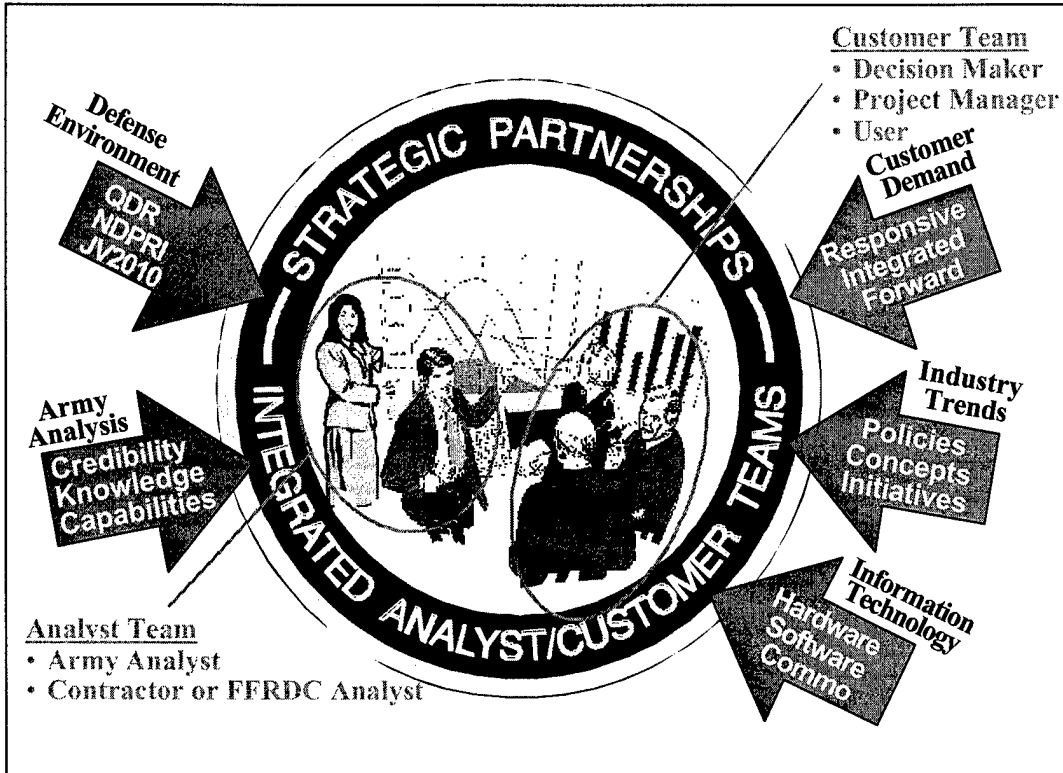


Figure 1. Focus of Change

First a glimpse at the bottom line. This report will show that there is a multiplicity of factors associated with the current and future environments that support a revolutionary concept for increased emphasis on a closer, more integral relationship between the in-house analysis community and the customer community (see Figure 1). Under this concept, analyst and customers work as an integrated problem solving team, and there is increased collaboration among all analysis resources to include in-house, federally funded research and development centers (FFRDCs), and contract resources. This concept, which can also be called “strategic partnering,” holds the promise for many benefits to both the analysis and customer community. The concept, its implementation, and the associated benefits will be discussed in greater detail in this report.

1.5 Approach

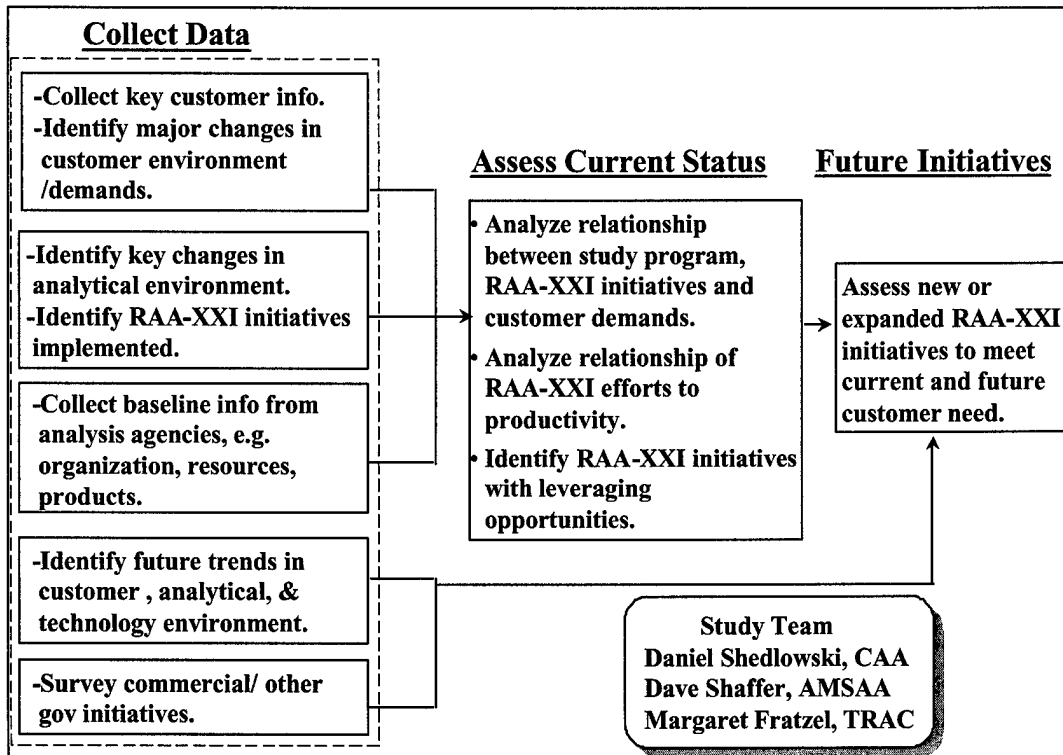


Figure 2. Approach

Figure 2 is an outline of the approach used to conduct the RAA-XXI effort. Information was collected from both the analytical agencies and the customers of analysis, with primary emphasis on customer input. Available material on revolutionary actions in the commercial, government and military communities was also reviewed.

Based on the data collected, initiatives were identified that held promise for increasing the analytical community’s capabilities to identify and meet customer demands while increasing efficiencies.

The initial set of proposed initiatives was screened to develop a final set of recommended initiatives that included principal revolutionary initiatives and several supporting initiatives to meet current and future customer demands.

1.6 Interviewees: Customers

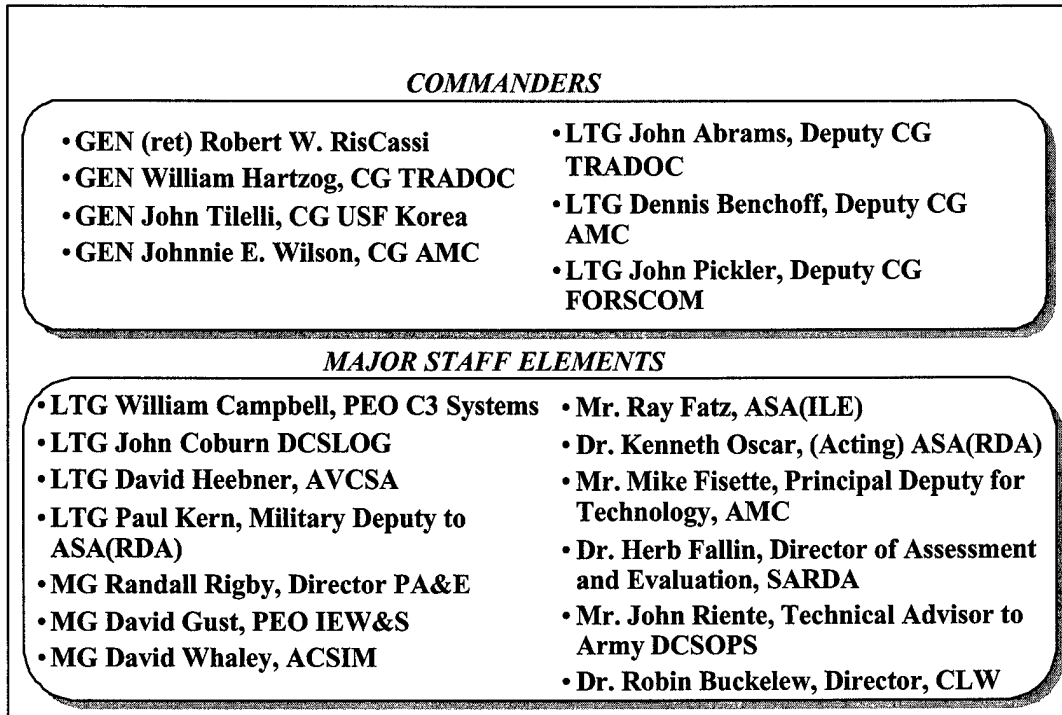


Figure 3. Interviewees: Customers

Personal one-on-one interviews were conducted with each of the key customers of analysis shown in Figure 3. The interviewees included both commanders and major staff element heads. Emphasis was on the customer's analytical demands, sources of analysis support, strengths and weaknesses of the support, and recommended improvements.

1.7 Customer View of Analytical Demands

- Ever increasing demand for quick turnaround.**
 - **Army in period of accelerating change.**
 - **Rapid technology turnover.**
 - **More quick response funding questions.**
- Greater quantity and more diverse scope**
 - **Systems more complex, broader threat spectrum.**
 - **More emphasis on joint context.**
 - **Growing demand for analyst to work as member of integrated team.**
 - **Customer staff decreases cause increased demands for analysis agency support.**
 - **More analysis that is:**
 - ✓ **Resource trade-off in focus and not directly related to warfighting e.g., infrastructure, environmental policy impact.**
 - ✓ **Broader in operational context, e.g., Smaller Scale Contingencies (SSC), Homeland Defense, Weapons of Mass Destruction (WMD).**

Figure 4. Customer View of Analytical Demands

A distinguishing feature of today's and future needs for analysis is the increasing demand for quick turnaround, a demand that is fueled by the accelerating change in the Army and the rapid change in technology.

Today and tomorrow's analytical demands are not only time constrained, they are also of greater quantity and scope. Analysts must deal with more complex systems, e.g., systems that are really part of a network of systems. The post-Cold War environment has spawned a broader threat spectrum. There is more emphasis on operating in a joint environment. Analysts must have increased capability to analyze other service contributions to warfare as well as they can analyze their own service. There is a recent and growing demand for analysts to serve as members of an integrated team such as an Integrated Concept Team (ICT) or Integrated Planning Team (IPT).

Many customers have lost their own analytical assets and are looking for more external support.

There is a increased demand for resource tradeoff and other analysis not directly related to warfighting. The need to reduce costs in these areas is driven by resource constraints that heighten the demand to find more resources in other areas that can be applied to programs directly related to warfighting.

The operational context of analysis continues to broaden. The post-Cold War emphasis on smaller scale contingencies continues, but more recently there has been increased emphasis on WMD and Homeland Defense.

1.8 Changes in the Analysis Community Resources

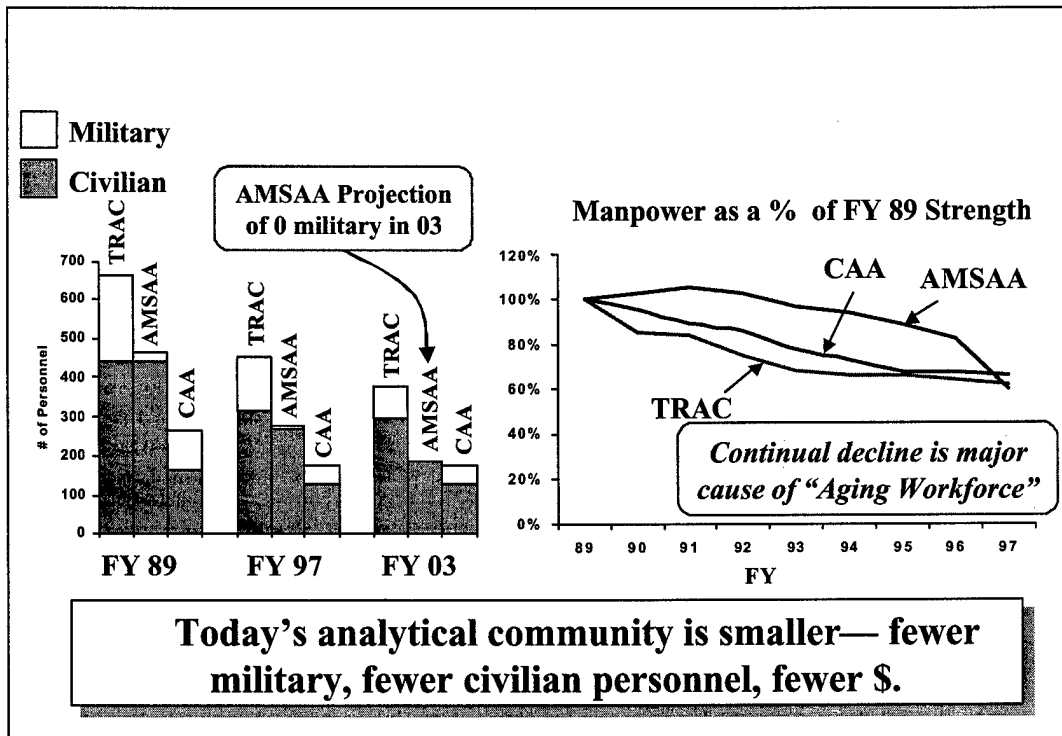


Figure 5. Changes in the Analysis Community Resources

Along with the Army at large, the analysis community has experienced a decline in resources as shown in Figure 5. Budgets have decreased, and personnel, both military and civilian, have declined over an extended period. To the extent that the decline has continued over an extended period, an "aging work force" phenomenon has occurred that exacerbates the challenge of maintaining needed analysis capability.

For those analysis agencies with a significant portion of military personnel, the effect of the aging civilian work force is diminished. The military portions of the analysis agency continue to maintain a healthy turnover and flow of personnel that contribute significantly to the vitality of their agencies. Of particular note, AMSAA's small number of military analysts threatens to decline to zero in the anticipated realization of projected reductions associated with the recently completed Quadrennial Defense Review (QDR).

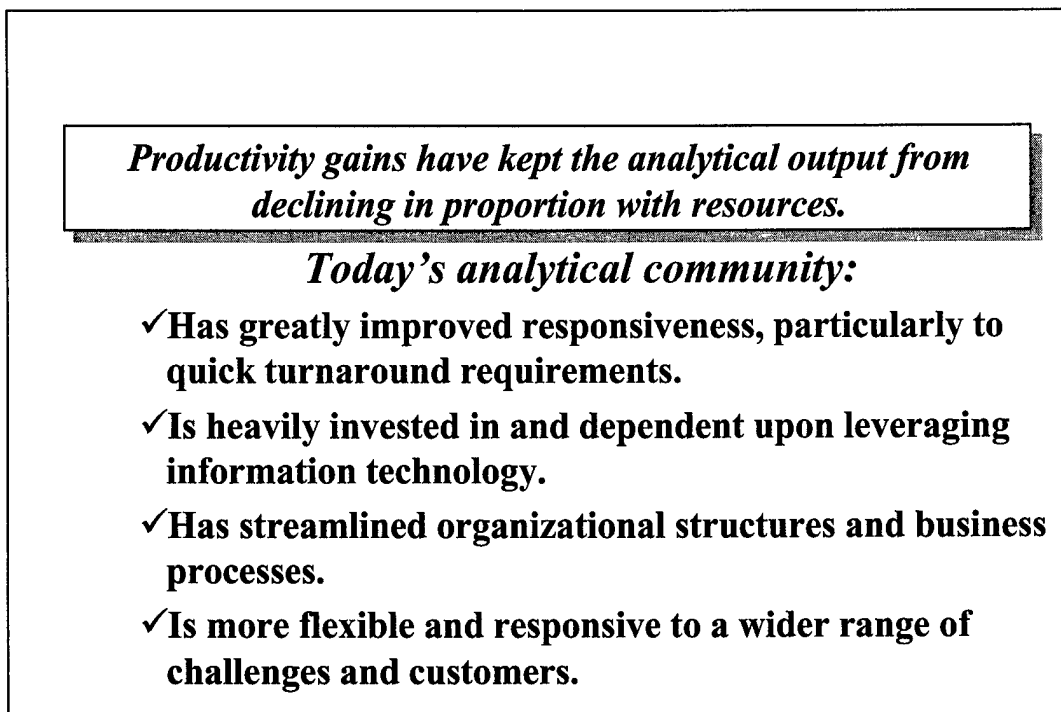
1.9 How Has the Analytical Community Changed in the Years 1989-1998?

Figure 6. How Has the Analytical Community Changed in the Years 1989-1998?

Despite the decline in resources, the analysis community has made significant strides in increasing productivity. Analysis capability has not declined in proportion to the declining resources. The analytical community has taken specific actions to maintain and increase productivity.

The study process has been streamlined, most notably in the areas of initiating the study and documenting the results.

Modernization and leveraging of information technology (IT) resources have produced orders of magnitude of improvement (Figure 7 provides specific examples). The rate of change of IT technology and associated productivity benefits demand continuing attention and devotion of resources to this proven source of productivity enhancements.

Significant organizational changes such as flattening of organizational structures and increasing the ratio of analysis vs support spaces have also contributed to productivity increases. Active programs are in place to support reengineering of analysis processes.

The Army analysis community is responding to the increased breadth of demand during this post cold war period. Analyses in areas of selected smaller-scale contingencies (SSC), weapons of mass destruction (WMD), Homeland Defense, and the Army After Next (AAN) are some examples.

1.10 Productivity: Leveraging Information Technology

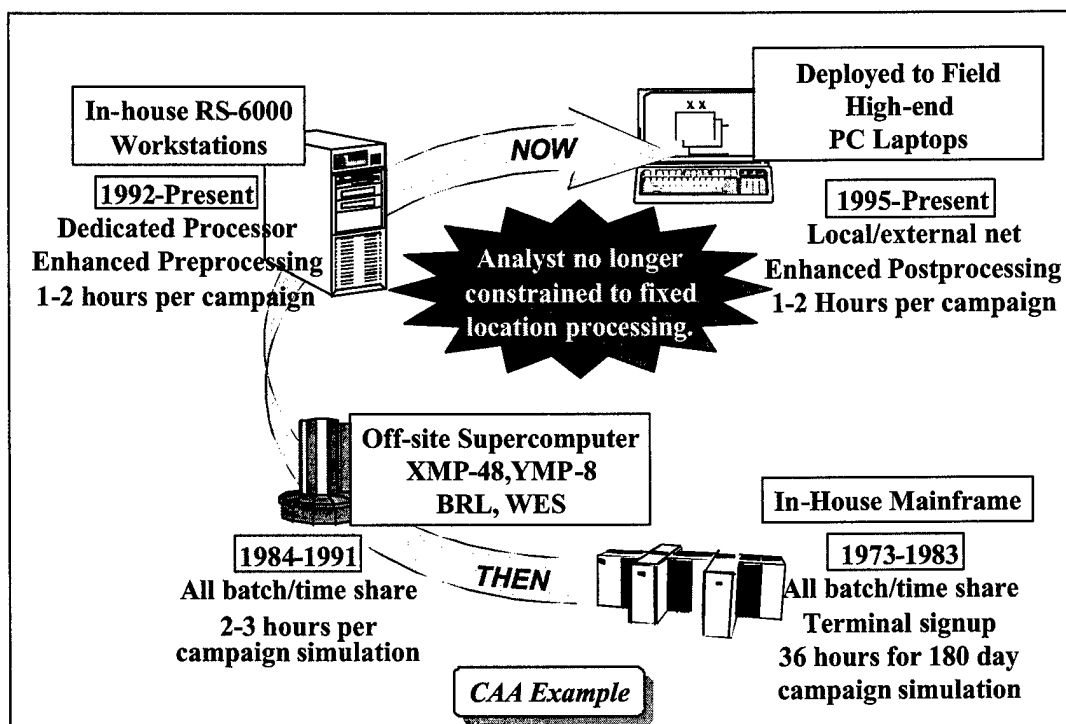


Figure 7. Productivity: Leveraging Information Technology

One of the major contributors to enhanced productivity is the leveraging of the exponential advances in IT capability and, in particular, processing speed. Using the primary model for campaign analysis at CAA, the Concepts Evaluation Model (CEM) as an example, we can trace its productivity from its inception in 1973 to the present time. See Figure 7

While the model has progressed through many changes (from CEM version 4 to version 9), it has migrated from fixed site in-house mainframe to offsite supercomputers, to in-house dedicated workstations, and last but not least to laptop computers. Along the way, processing time has decreased from 36 hours for a campaign analysis to the current 1 to 2 hours on a laptop. Available commercial software on the latest platforms has significantly enhanced pre- and postprocessing and analysis of model data.

It is also important to note that along the way, the analyst has been freed from being tied to a fixed site computer. He can now take his entire analysis capability "on the road" so that campaign analysis can be and is now being conducted on site with the customer. CAA has a deployable analysis team that is on ARCENT's TPFDD and has deployed on several exercises to do real-time, in the field, course of action analysis in preparation for a potential wartime deployment.

1.11 Productivity: Analytical Output

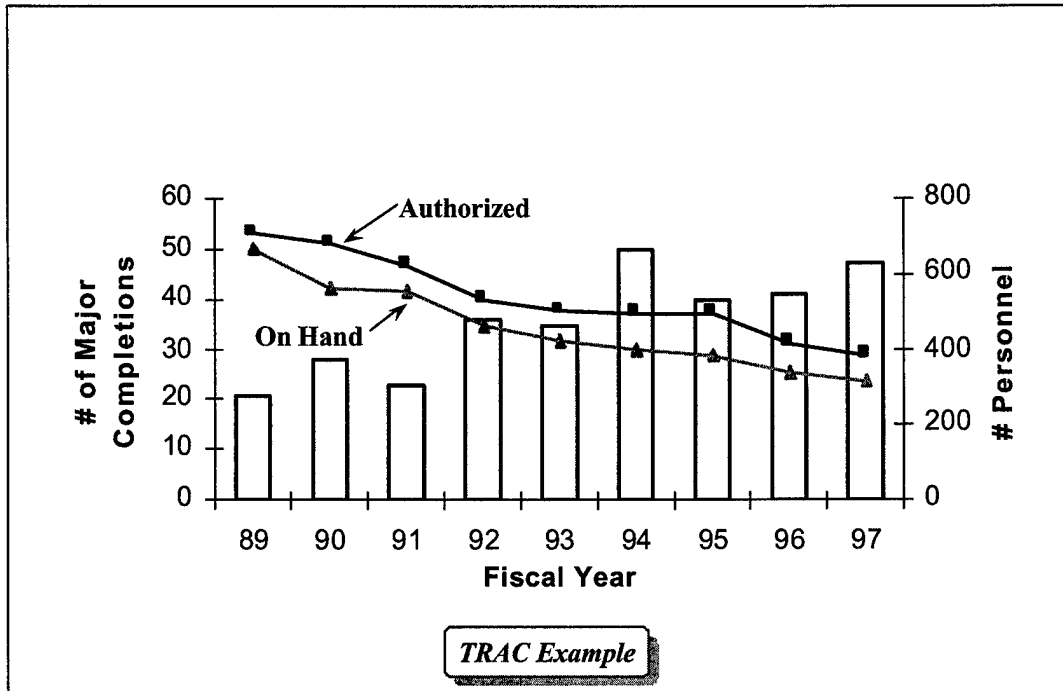


Figure 8. Productivity: Analytical Output

As a result of the leveraging of technology and associated process and organizational changes, significant advances in productivity have resulted despite the continual decline in resources. As an example, Figure 8 shows the decline in TRAC authorized and onhand personnel resources superimposed on the number of major completed analysis efforts. Relatively minor analysis efforts are not included. The trend of significant increases in productivity over a period of consistently declining resources is readily apparent.

The preceding discussion provided a brief overview of major recent changes in the analysis community. The section that follows introduces proposals for additional changes that can further enhance our analysis productivity, particularly with respect to meeting all important customer needs.

2 REVOLUTIONARY INITIATIVES

Having discussed customer input on their demands for analysis and a summary-level discussion of some major changes that have taken place in the Army's analysis community, we now turn our attention toward actions to increase the capability to meet current and future customer demands.

2.1 Essence of Reinvention

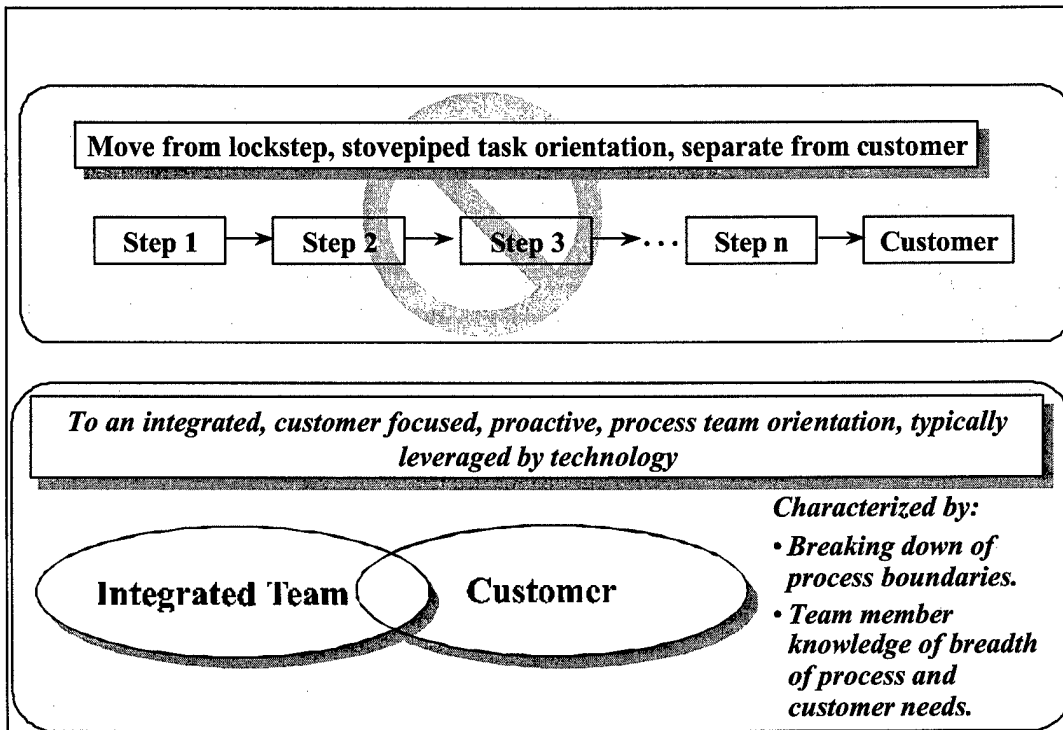


Figure 9. Essence of Reinvention

We can help focus on the characteristics of a revolutionary initiative by reviewing current literature that describes the process revolution in the business world. The process revolution in the business world is described as a change from:

a heel to toe, linear process of separate steps where those people associated with each step have little knowledge of or interaction with the other steps or how they relate to the customer

to:

an integrated team approach that is leveraged by technology. The members of the revolutionary or reinvented process have much greater demands placed upon them since they must have knowledge of the breadth of the total process and how it relates to and satisfies customer needs. It is characterized by the breaking down of boundaries of the

process. All of the participants of the process are more effectively and efficiently able to support the overall process and customer objectives.

Today's revolution in the business world can be described as a reversal of the assembly line practices of the industrial revolution, a reversal that is enabled by information age technology. The industrial revolution focused on separating processes into distinct separate steps where each step was isolated and optimized to the greatest extent possible.

2.2 Customer Relationship

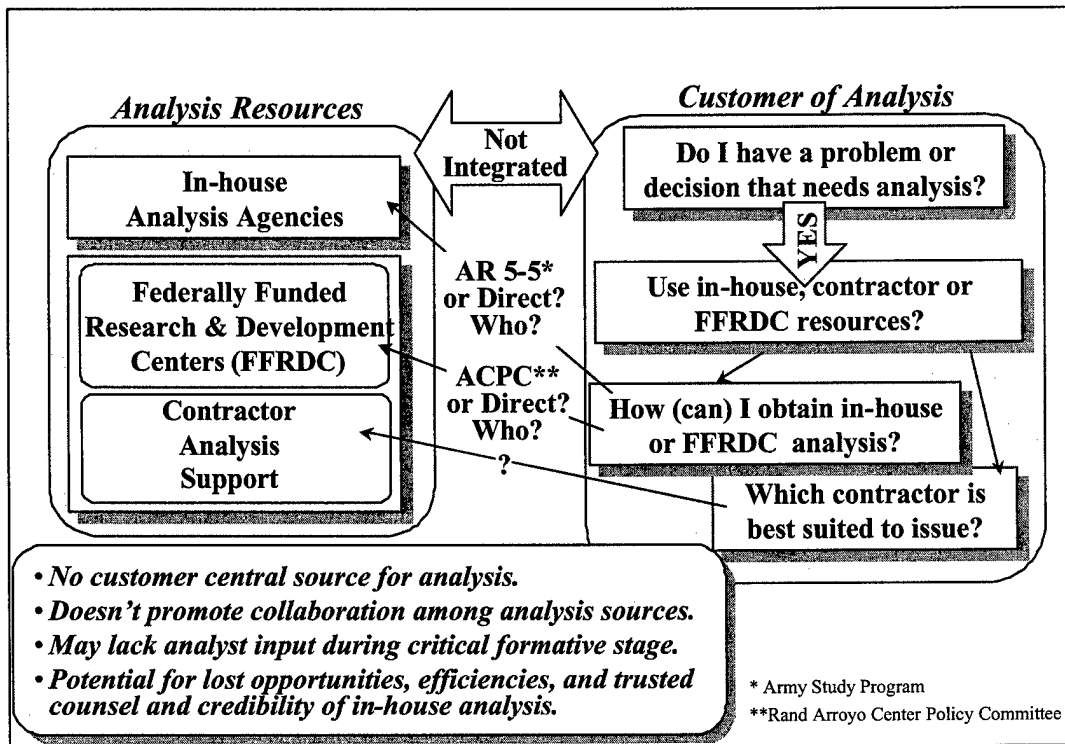


Figure 10. Customer Relationship

Figure 10 examines the current analysis process with a focus on how it relates to the customer and the role of both the customer and the analysis resources as part of the analysis process.

Based on the interview comments received during this project, the customer of analysis is typically not an integrated member of the analysis process, at least not during the initial stages of the process when a problem or decision that may require analysis support first surfaces in the customer environment.

During this initial stage of the process, the customer may or may not realize that he can benefit from analysis support in addressing the problem at hand. If he does, he then needs to decide how best to obtain the analytical support he needs or thinks that he needs. The frequency of turnover in decision making positions in many cases does not lend itself to the customer being aware of the sources of analysis and how to obtain access to these analysis resources.

As shown in Figure 10 above, a customer may follow a yearly study programming process such as the AR 5-5 study program to formally request study support if requirements are identified in the timeframe that coincides with the execution of this process. Otherwise, the customer may go directly to the potential study performer and receive support based on priorities and resource availability. The customer may also have to evaluate which potential study performer may best suit his needs.

Ideally, the customer desires to have ready access to a single, trusted source of analysis support, regardless of how the analysis is actually performed. But in today's quick turnaround environment, there may not be sufficient time to acquire analysis support.

To add to the problem, there is no central source from which a customer may obtain analysis support. The current environment is more likely to foster competition rather than collaboration among the sources of analysis. This can result in lost opportunities and inefficiencies in supporting the analysis customer. The advantages of in-house analysis capabilities will not be properly leveraged.

2.3 Reinventing the Customer/Analysis Interface

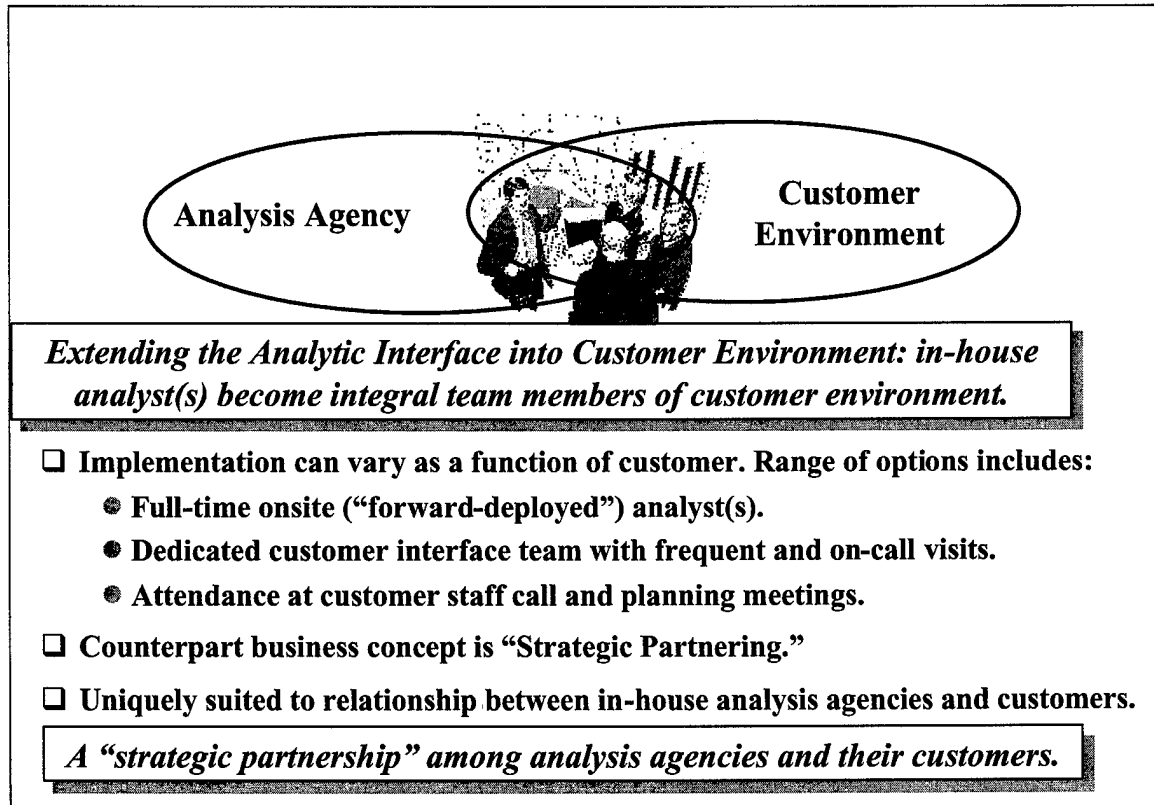


Figure 11. Reinventing the Customer/Analysis Interface

A revolutionary initiative to significantly increase the capability of the analysis agencies to meet customer demands is to extend the boundaries of the analysis agencies to include the customer environment so that the customer and analyst form an integrated team, as shown in Figure 11 above.

At its limit, this concept consists of analysts or analyst teams located at the customer site, but the degree of interaction between the analyst and customer can vary as appropriate for the specific customer environment and its anticipated analytical demands.

In the parlance of the current business environment, this initiative establishes a “strategic partnership” between the customer and the analysis agency. The analyst or team of analysts interacting directly with the customer organization represents a partnership, not with just the on-site individual, but primarily with the parent analysis agency and, to the extent possible, the entire analysis community.

Careful attention to maintaining and nurturing the relationships among the customer, the “forward deployed” analyst, and the parent analysis agency can support the strategic partnership concept while maintaining the analyst’s relationship as an effective member of the parent

analysis organization. This concept is also supported by today's information technology enhanced communication capabilities.

The most obvious benefit is that the analysis community can provide an on-site, real-time, central source for analysis support to the customer, but there are many other advantages, and some of the major ones are discussed in Figure 13.

2.4 Customer Input

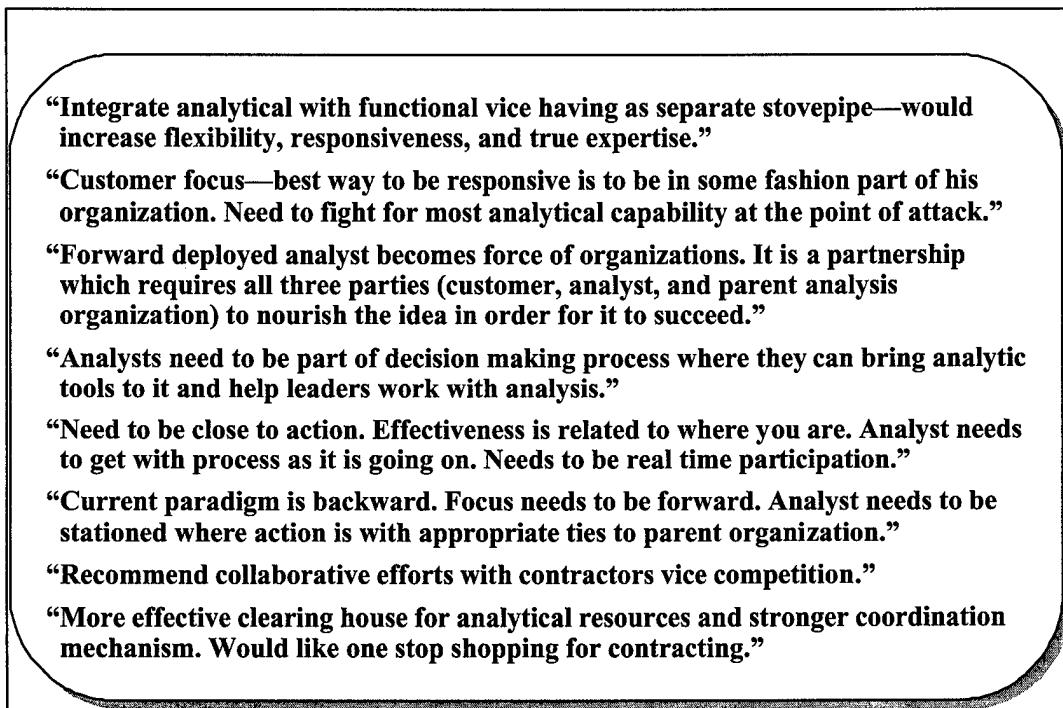


Figure 12. Customer Input

It was obvious in the customer interviews that the initiative proposed in the previous paragraph would have a lot of support, and Figure 12 presents some of the key comments in that regard.

The third quote in Figure 12 above deserves special emphasis. All parties need to intensely manage this initiative to assure its success. It will not be a success if the forward-deployed analyst is absorbed by the customer organization and loses his identity as a full participating member of the parent analysis organization. It will not be a success if the parent agency does not take the necessary steps to assure that the on-site analyst is provided the necessary resources to accomplish the mission.

The last two interview quotes emphasize the need for more collaboration among the sources of analysis and the need for a central source for analysis. The on-site analysis concept is ideally suited to address these issues.

2.5 Advantages of Strategic Partnering

- ❑ ***Significantly enhances recognition of true customer demands and priorities.***
- ❑ **Breaks down linear process. Analyst is integral member of customer process team.**
 - Puts responsibility for analytic input into process where it belongs—on the analyst (or analyst team).
 - Analyst gains invaluable functional area knowledge. Can support maintaining operational experience under OPMS XXI.
 - Analyst (or analyst team), when feasible, conducts analysis on-site with parent Agency, or with other appropriate resources as necessary.
- ❑ **Provides customer with “one stop shopping” for analysis. Promotes collaboration among analysis resources → efficiency benefits. Work which can best be done by external analysis resources is “outsourced.”**
- ❑ **Relationship with parent Agency:**
 - Assures quality control, ready access to other analytical resources, support, guidance and training.
 - Informs Agency on customer environment (thereby facilitating proactive planning for longer term tool and methodology development).

Figure 13. Advantages of Strategic Partnering

As shown in Figure 13, there are many benefits that flow from the strategic partnering concept for both the customer and the sources of analysis.


First, both the analyst and the analysis community gain a new-found comprehension and appreciation for the true demands for analysis by the customer. Customer interviews such as those conducted for this effort would be unnecessary. The analysis agencies would have a continuous flow of information relating to customer demands to enable them to more accurately plan and prioritize initiatives to satisfy both near- and far-term demands.

The core attributes of an in-house analysis capability such as functional area knowledge, credibility and trust, responsiveness, and membership in the Army community will be significantly enhanced.

The customer benefits from a single, trusted source of analysis that participates as a member of the customer team in addressing analysis needs. The goal is to enable responsive analysis to be provided by those analysis resources that are best suited to the problem at hand. These resources may be in-house, contract, FFRDC, or some combination of any or all of these resources. The in-house, on-site analyst(s) (and the parent organization) provides the customer with a source of “one-stop shopping” for analysis.

2.6 Demands of Analyst Team Member

- Attributes**
 - **Can communicate in operational terms.**
 - **Innovative, agile, adaptive, inquisitive.**
 - **High integrity and “courage” to tell all.**
- Skills in:**
 - **Problem solving, setting up framework for practical problem solution.**
 - **Decision Analysis, Cost vs. Benefit analysis, Data analysis techniques.**
 - **Use of quick set up PC-based analytical tools.**
- Access to needed data, model and expertise resources.**
- Knowledgeable of functional area and sources of analysis**



“AGILE ANALYST” —Problem solving focus, uniquely capable

Figure 14. Demands of Analyst Team Member

As shown in Figure 14, the demands on an analyst serving in this role are high. It requires a uniquely capable individual with specific attributes, skills, knowledge, and capabilities to perform in this dynamic, highly interactive role. The analyst must have a broad knowledge of the capabilities and practical application of available analysis resources and techniques. He/she must also have communication and interpersonal skills, plus high standards of professional integrity.

Some of these capabilities need to be grown and expanded or new ones may be added as we gain more experience with this initiative, which is one of the reasons why a high level of feedback among all participants is important.

The bottom line of the figure sums up the type of analyst that is needed, and the analytical agencies need to refocus their hiring, training, and incentive programs to foster the development of these individuals.

2.7 Vision: More Collaboration

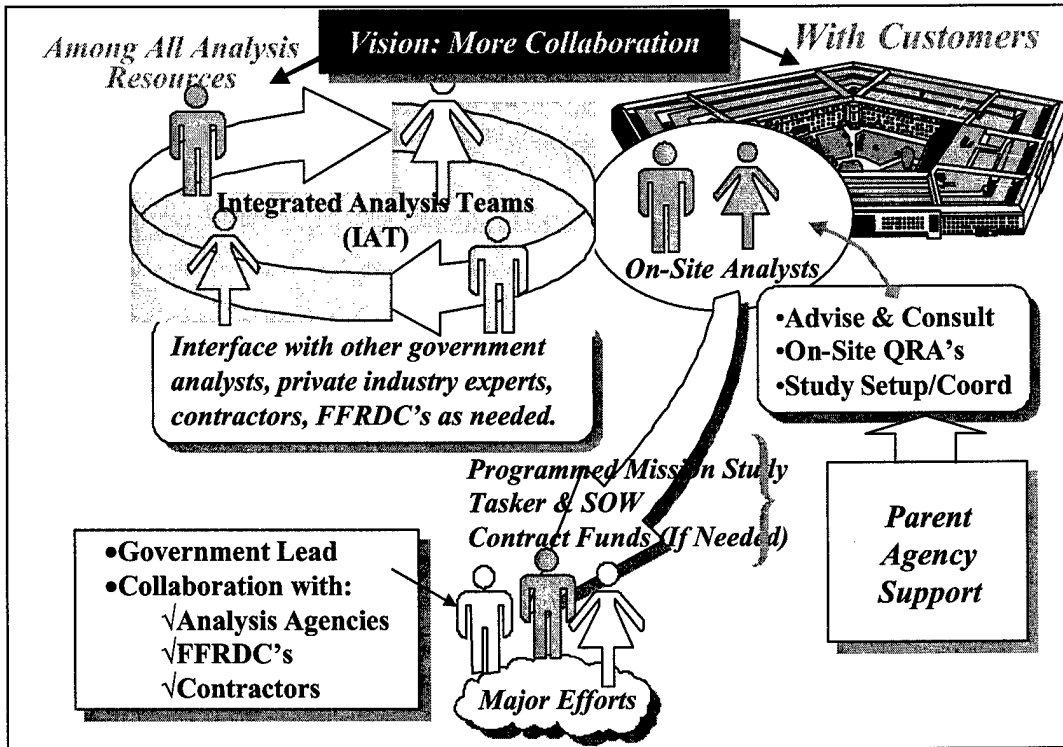


Figure 15. Vision: More Collaboration

Longer-term enhancements to the strategic partnering initiative focus on enhancing the “one-stop shopping” concept with the in-house, on-site analyst having access to a wide breadth of resources as part of an extended team that includes contractors, industry experts, and FFRDCs as needed to assist in his/her endeavors to support the customer on site.

In those cases where a major separate study is required to address a significant problem area that is beyond the scope of on-site analysis, the on-site analyst(s) is the initiator and the primary input to defining and coordinating the study effort that typically will be accomplished via the parent analysis agency. The parent analysis agency would also collaborate with other analysis resources as necessary to meet the demands of the study.

Regardless of how and where the analysis is accomplished, the on-site analysts are the focal point for identifying and meeting customer demand.

The in-house analysis agency serves as the primary mechanism for maintaining a uniform quality control over all analysis conducted in support of the customer, regardless of the source, and for proper overall prioritization of resources.

2.8 RMA Analogy

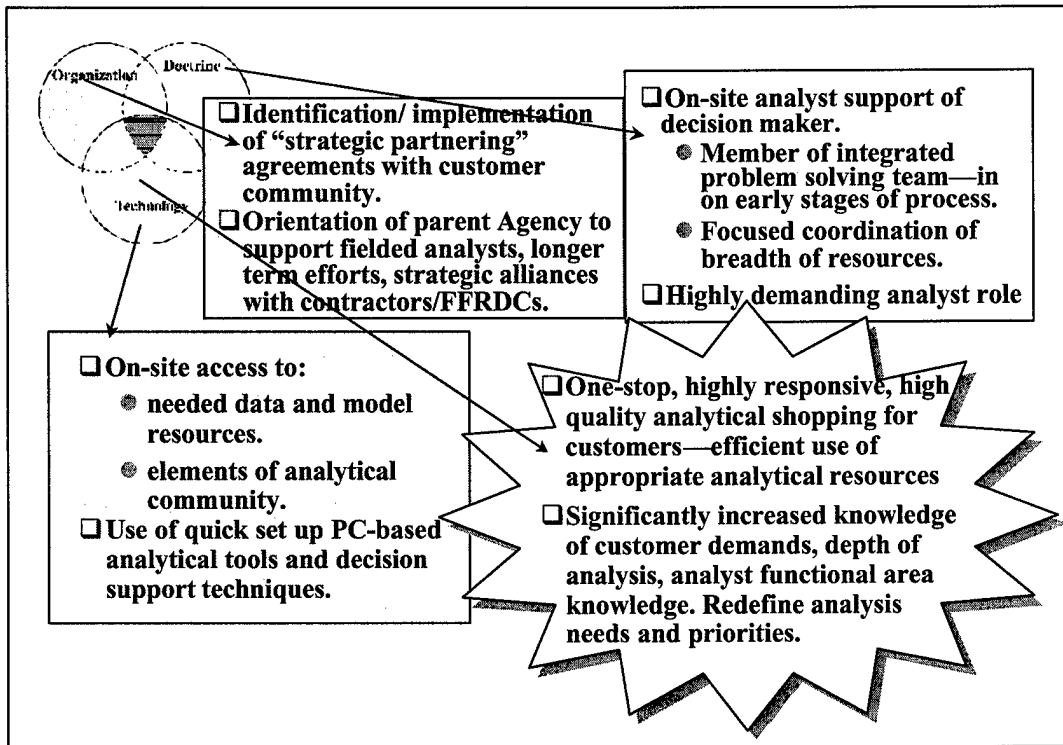


Figure 16. RMA Analogy

Figure 16 relates the strategic partnering concept to the overall Revolution in Military Affairs (RMA) analogy as the synergistic interaction of changes in doctrine, organization, and technology. This representation of the RMA is as discussed by LTG Heebner in his initial briefing that started this project.

With regard to the strategic partnering concept, the change in doctrine is embodied in the change in the operational concept of the analyst now working as part of an integrated customer analyst team, getting in on problem solving on the front end.

The change in organization is embodied in the actions required of the parent agency and, to some extent, the customer as well to support this concept. Ultimately the parent analytical agencies will need to organize around the focal point of supporting the strategic partnering concept. In addition, organizational and, to some extent, doctrinal changes will be required to support more collaboration among available analysis resources.

The synergistic benefits of the strategic partnering concept have already been discussed—benefits to the analysis and customer community alike.

2.9 Supporting/Enabling Initiatives

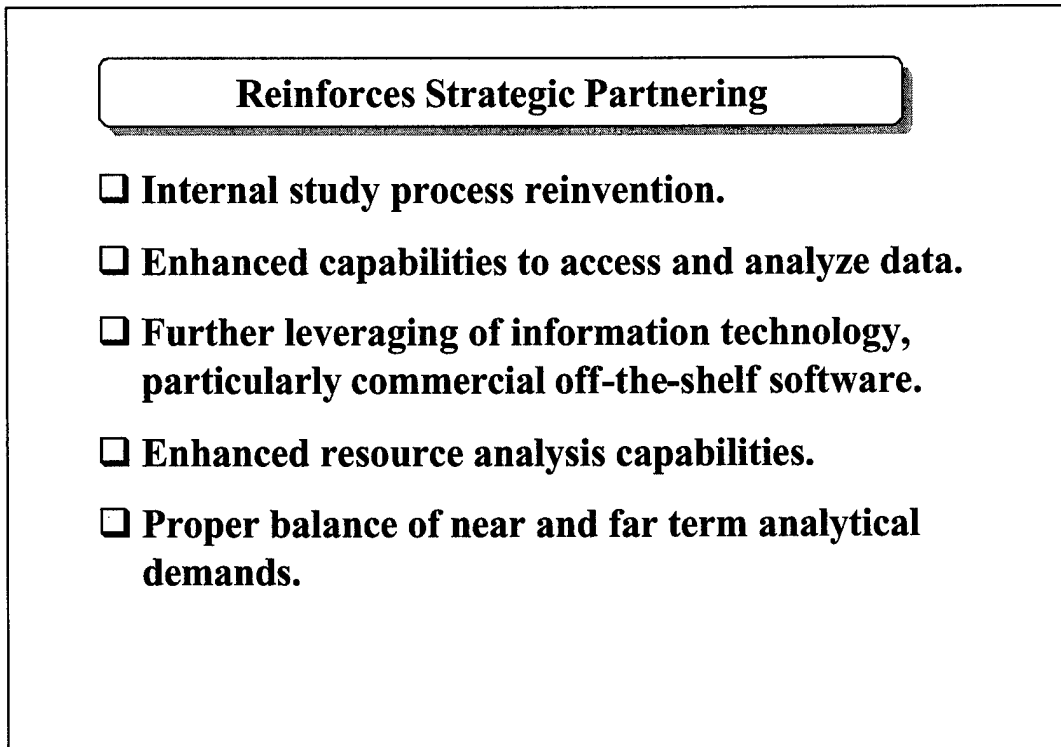


Figure 17. Supporting/Enabling Initiatives

Other proposed initiatives, also based on the customer interviews, that can enhance analysis capability and further support the strategic partnering concept are shown in Figure 17. There are internal, multistep study processes within analysis agencies that can also benefit from conversion to a more integrated, team-based process. The steps of the process should be integrated so that individual team members understand the steps of the process and how they relate to each other and to the overall objective (and customer) of the process. Rather than executing each phase of the process in a lock step fashion and only moving to the next step after the previous step is completed in final form with all necessary data, the entire process should be executed in an iterative manner with continual refinement of the data and methodology as required.

The importance of the basic capability to access and analyze data was underscored in many of the interviews.

Further leveraging of information technology, particularly commercial off-the-shelf (COTS) software, is important to the continued realization of even greater gains in productivity.

It is also particularly important in today's world of constrained resources to maintain a balance between near- and far-term analysis and model development. Identification of long-term priorities will be enhanced by the improved customer input that will be available via the strategic partnering concept.

3 RECOMMENDATIONS

This section of the report provides recommendations for changes in the Army analysis community, based on the findings of this project.

3.1 Strategic Partnering Recommendations

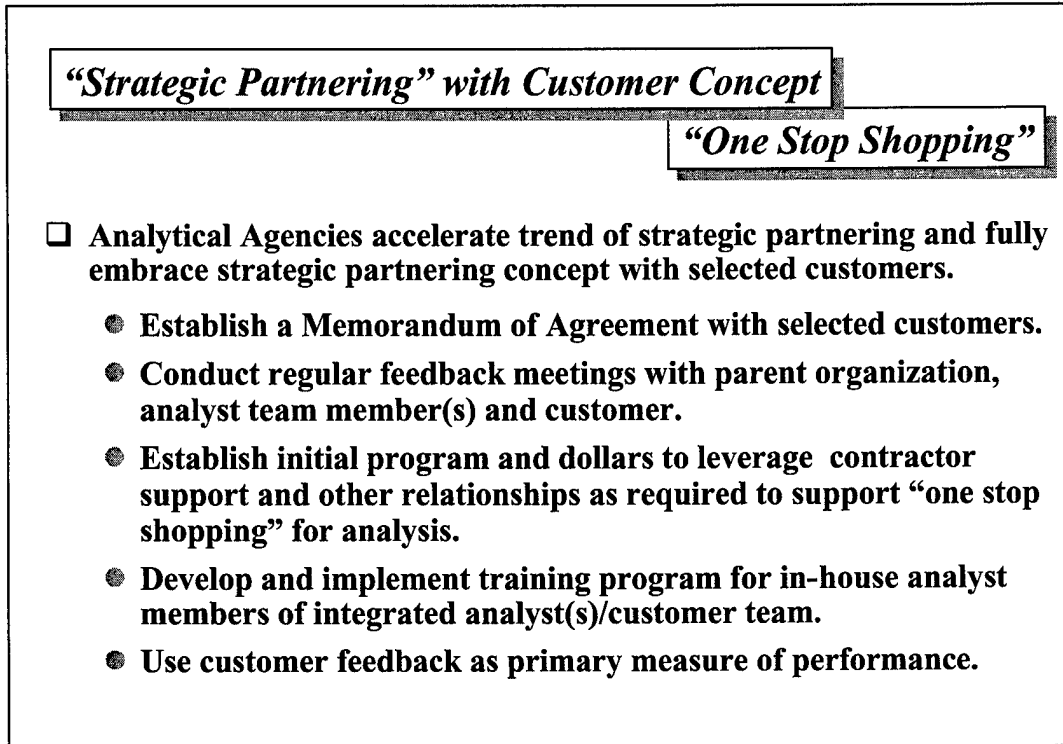


Figure 18. Strategic Partnering Recommendations

The first recommendation concerns moving forward with and fully embracing the strategic partnering concept, albeit initially on a limited scale.

It is important during this initial phase of implementation that all participating customer and analysis elements maintain close interaction.

The primary performance measure for success in the implementation of the strategic partnering is customer feedback since the primary orientation and focus of this initiative is the customer and meeting his analysis demands.

In those cases where strategic partnering initiatives are already under way, the analysis agencies need to look toward expansion of the concept and how the parent agencies can take action to increase the support to the on-site analyst(s).

“Strategic Partnering” with Customer Concept (cont)

- ❑ **As concept matures expand to include:**
 - **Expand/Develop relationships/strategic alliances between parent analytical organizations and contractors/FFRDCs to enable leveraging and outsourcing of specific functional expertise, e.g., establish integrated analysis teams in selected functional areas.**
 - **Refinement of organization of parent analytical agency around concept of supporting strategic partnering concept.**
 - **Formal recognition of significance and demands of role of analyst(s) serving as members of integrated customer/analyst teams.**

Resource Analysis

- ❑ **Analysis community needs to establish and leverage a partnership with cost community to enhance Army’s resource analysis capability.**

Figure 19. Additional Strategic Partnering Recommendations

Figure 19 addresses expansion of the concept to enable easier access to a broader range of analysis resources via the on-site analyst. To fully implement the concept of “one-stop shopping” for analysis, the necessary knowledge and relationships need to be developed to allow the on-site analyst(s) to serve as a central means of obtaining all-source analysis support. This support includes the on-site analysts having ready access to specific individuals with recognized expertise in specific functional areas regardless of whether they are in-house, contractor, or FFRDC individuals. Once the associated individuals for a particular functional area, e.g., theater missile defense analysis, have been identified, today’s enhanced Internet capabilities can enhance communication among the team members. Analysis requirements over and above that which can be conducted on site will typically be accomplished with the aid of the parent analysis agency.

The analysis and cost communities need to actively engage in a partnership to further the conduct of resource analysis.

3.2 Additional Recommendations

Internal Study Process Reinvention

- ❑ **Identify a candidate linear analytical process (i.e. one that has separate distinct major steps executed sequentially) and establish a formal effort to convert to an integrated process conducted with an integrated team concept.**
 - **Document actions, results, lessons learned from efforts.**
 - **Based on results of prototype effort, extend to other processes and agencies as appropriate.**

Other Enablers

- ❑ **Focus on and emphasize information technology and data initiatives to support strategic partnering concept.**
- ❑ **Develop training program to support leveraging of COTS and internet capability. Refine program based on feedback from test implementation of strategic partnering concept.**
- ❑ **Focus on development initiatives that leverage current hardware and applications software to support quick turnaround capability.**

Figure 20. Recommendations

In addition to strategic partnering to revolutionize the process relationships between the analysis community and the customer, the analysis community needs to review and reinvent its internal analysis processes as necessary to provide for more effective and efficient analysis. Multistep, sequential processes need to be integrated so that process team members understand the process in its entirety and are able to execute the process in an iterative manner of continual refinement.

The leveraging of IT initiatives which has already brought significant benefits to the analysis community needs to be extended with special emphasis on those aspects which relate to supporting the on-site analyst involved in the implementation of the strategic partnering concept. Of particular interest are leveraging of COTS software and the communications capabilities associated with the Internet.

4 SUMMARY

- ❑ **Post cold war demands on the analytical community are significantly different (quicker turnaround, greater quantity/scope, more resource analysis). The Army analytical community has streamlined processes and organizations, leveraged information technology to offset declining resources while enhancing capabilities.**
- ❑ **A revolution in analytical affairs to meet customer demands can result from advancing an integrated team approach, leveraged by technology, to enhance the interface between the customer and supporting analysis agency:**
 - ✓ **“Strategic partnering” to extend the analysis interface forward into the customer environment to interact directly with customers to ascertain and meet demands.**
 - ✓ **“One Stop Shopping” via collaborative efforts with contract/FFRDC analysts and other analytical agencies.**

Figure 21. Summary

In summary, since the end of the Cold War, there have been significant changes in the demands for analysis and the analysis community has made significant changes to enhance its capabilities.

However, the time is ripe for implementation of a strategic partnering initiative between the analysis community and its customers, which, if properly implemented, promises significant synergistic benefits for all participants. The analysis community will be more responsive and knowledgeable of customer analysis demands and support greater collaboration among the available analysis resources.

- To complement and enhance the strategic partnering initiative, the Army analytical community also needs to:**
 - **integrate the component steps of internal linear analysis processes.**
 - **Improve data analysis capabilities (access, integration, quality, database management (DBMS) use).**
 - **Fully leverage/extend information technology capabilities.**
 - **Balance near term demands with longer term strategic analysis and methodology development, and maintain quality (despite resource constraints).**
- The Army should support implementation of the proposed initiatives, followed by refinement and expansion as appropriate.**

Figure 22. Summary (cont)

Finally, there are other supporting initiatives for enhancing analysis capabilities that will also benefit from the strategic partnering concept.

The Army needs to support implementation and expansion of these initiatives.

APPENDIX A PROJECT CONTRIBUTORS

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Dr. Ralph E. Johnson, Quality Assurance

APPENDIX B REQUEST FOR ANALYTICAL SUPPORT

P *Performing Division:* CG *Account Number:* 98037

A *Tasking:* Formal Directive *Mode (Contract-Yes/No):* No

R *Acronym:* RAA-2000

T

Title: Revolution in Analytical Affairs - 2000

1 *Start Date:* 20-Nov-97 *Estimated Completion Date:* 31-Jul-98

Requestor/Sponsor (i.e., DCSOPS): DUSA-OR *Sponsor Division:*

Resource Estimates: a. *Estimated PSM:* 5 b. *Estimated Funds:*

c. *Models to be Used:*

Description/Abstract:

Collect data and conduct interviews to analyze changes that have occurred in the analytical community's capability and responsiveness to customer demands in the ensuing period since the end of the Cold War. Project likely future trends in the analytical and customer environment and recommend action best suited to meet these future challenges.

Study Director/POC Signature: **Original Signed** *Phone#:* 703-806-5508
Study Director/POC: Mr. Daniel Shedlowski

If this Request is for a STUDY Part 2 Information is Not Required. See TAB C of the Study Directors' Guide for preparation of a Formal Study Directive.

Background:

P AVCSA LTG David Heebner's Address at AORS XXVI, 13 Nov 97, noted the ongoing revolution in Business and Military Affairs (RBA and RMA) and asked if there is (do we need) a corresponding revolution in analytical affairs?

A

R *Scope:*

T Focus on customer decision support requirements and the supporting analysis community. Track FY 89 (last year of Cold War) base year to present, i.e. 1997. Look out over the next 10 years.

2

Issues:

What changes have occurred in the Army analysis community's analytical capability and responsiveness to customer demand, in available analytical resources (people, \$) and the customer environment? How has the analysis community reacted to these changes? What future changes are needed?

Milestones:

11 Dec: Brief Steering Committee on Plan. End Dec: Brief SAG. Dec-end Jan: Collect Data, conduct interviews. IPR end of first week of Feb. Final brief: end of Feb.

Signatures *Division Chief Signature:* **Original Signed and Dated** *Date:*

Division Chief Concurrence: Mr. Daniel Shedlowski

Sponsor Signature: **Original Signed and Dated** *Date:*

Sponsor (COL/DA Div Chief) Concurrence:

APPENDIX C CUSTOMER COMMENTS

This appendix contains some selected comments that were obtained from interviews conducted with senior-level officials from the customer community for Army analysis.

Of particular concern is the demand for quicker turnaround of analysis support. Analysts need to be equipped to provide timely and responsive information to support decision making.

As noted in the last quote in Figure C-1, analysts need to be prepared to provide timely information, even at the risk of it not being as perfect as they might desire under less adverse conditions. The decision maker is prepared to deal with less than perfect information.

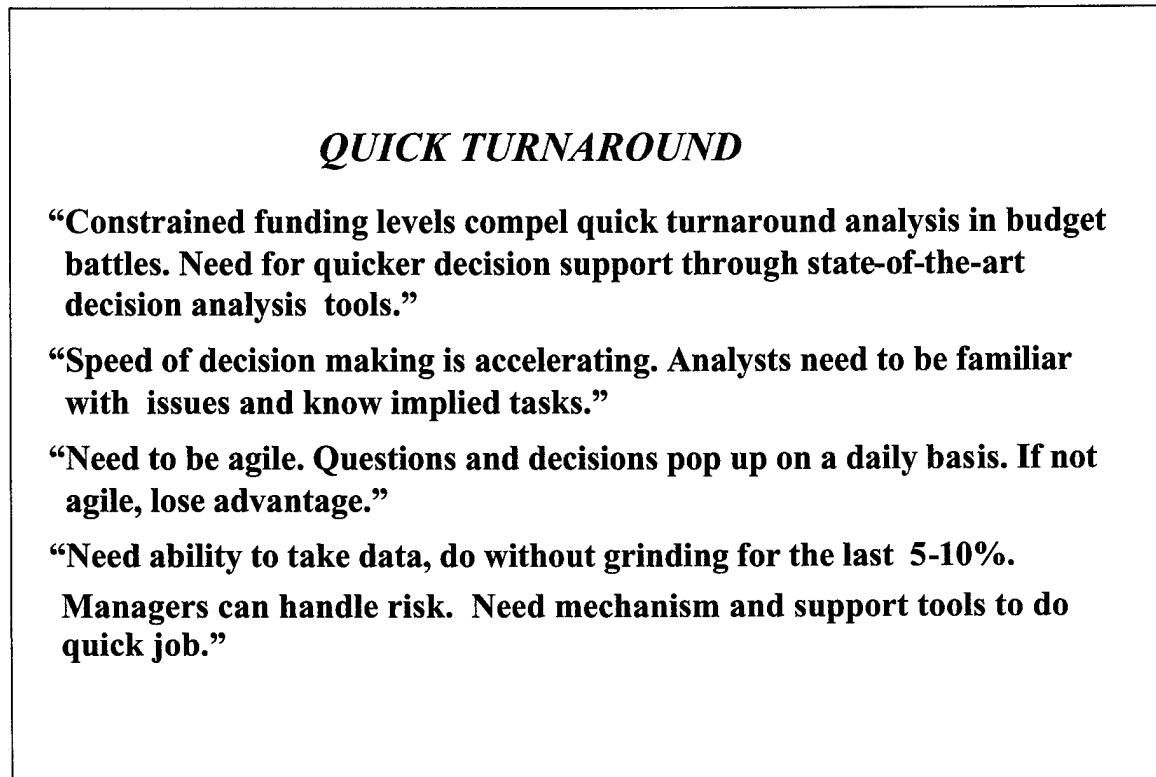


Figure C-1. Customer Comments on Quick Turnaround

Quantity and Scope

“New post cold war conditions: (1) Don’t know enemy today, (2) Today’s technology does not allow long linear process. Technology turns in much less time than that.”

“Today’s systems are much more complicated. They are part of a network.”

“Now software more often changes today’s weapon system vice hardware. Interfaces and network important.”

“It is clear that a change is needed from the joint perspective. How to integrate effects of all services. Will occur in one form or another but must be done thoughtfully.”

“Increasing emphasis on jointness, hence an increasing requirement to coordinate between Services, Joint Staff and with CINCs’ staffs”

Customer need for external support

“We will need more external analysis than ever before. I would urge the analytical community to make itself more available and more responsive to help compensate for the loss of analysts from my organization.”

“Downsizing has increased demand for additional analysis support external to my organization. Not always sure where to get the proper support.”

Figure C-2. Customer Comments on Quantity, Scope, and External Support

Figure C-2 contains some comments on the increased quantity and scope of analytical demands and the need for external support.

The comments testify to the breadth of possible threats, the rate of change of technology, that today’s systems are usually part of a network or networks within networks that are software driven, the joint environment. Although the customer’s need for external analysis support is increasing, it is important to note that many customers are not sure where to go for best support. This is a key point that is addressed in Sections 2, 3, and 4.

Growing demand for analysts as members of integrated teams.

“In broad sense, Force XXI, AAN will require analysis of impacts as they are ongoing. May make some differences in way we do analysis.”

“There are examples of the analytic process moving to become part of operations teams.”

“Changing from heavily top driven to a more dynamic process.”

“IPT is a culture change.”

Figure C-3. Customer Comments on Integrated Teams

Changes that are already taking place in processes external to the analytical community are capitalizing on the reinvention technique of using integrated teams and analysts are being asked to serve as members of these teams on an increasing basis. A notable example of this is the new requirements determination and acquisition process with its integrated concept and product teams. As members of these teams, analysts must be prepared as much as possible to provide on-site analysis support in a dynamic environment.

Resource Tradeoff/non-warfighting

“Legislative and regulatory changes impact demands for analysis. Primarily reactive. Trying to build strategic process so can identify future issues and be proactive.”

“Clinger-Cohen Act*: Its implementation requires an ROI evaluation before major investments in info technology.”

“Potential for another round of BRAC will increase need for analytical support.”

“Need to answer questions like where are we spending money, in right place, how much is enough, when is infrastructure not able to support?”

“Acquisition community looking for O&S savings to convert to modernization. Much heavier emphasis on identifying investment initiatives to reduce O&S costs.”

“Cost As an Independent Variable (CAIV) will result in new higher fidelity analysis being required to fully assess the best decision options.”

* Technology Management Reform Act of 1996

Figure C-4. Customer Comments on Resource Tradeoffs

The post-Cold War environment of declining resources has dramatically increased the demand for resource analysis, particularly in areas that are not directly related to warfighting issues. These excerpts from the interviews attest to this phenomenon. Emphasis on infrastructure costs, O&S cost savings, and the distinct potential for another round of Base Realignment and Closure actions are some of the key areas of focus.

“Analyst needs to be able to operate in fast paced environment of ready access to databases. Need people who are current on data tools.”

“Going out to other sources of data to get them to put their data on line also so analytical agency can get info for its data bases directly via internet. Old stovepipe data bases need to be redesigned to accommodate new ways of processing and acquiring data.”

“Also need ways to mine data to extract most info from data—info as to cause and effect, i.e., valid inferences.”

“Improve ways for documenting study results and findings to facilitate retrieval and reuse in future efforts.”

“Renew the efforts to integrate disparate data bases. This effort would be enhanced by adopting DOD-wide automation standards.”

“Data bases are crucial. Need joint architecture—Army and DOD standard for databases.”

Figure C-5. Customer Comments on Data for Analysis

New and powerful database applications are now available to include on each analyst's desktop computer. However much work needs to be done to revise existing databases to improve their validity and accessibility. Also, significant benefits can be gained from extending the use of database management systems to areas not currently included. Analyst training in this important application area is also important.

Resource Analysis

“Analysts focus on warfighting but not the “business” side of the Army. Many critical “business” decisions not based on analysis. Pay more attention to business practices that would allow more money for other things. (i.e., the analysis community should be able to advise on business practice decisions to save money).”

“The analytical community could be at the ready to provide timely support to HQDA budget/POM/acquisition decision makers in defining and defending requirements.”

“Improve capability for requirements/performance/cost trade-offs.”

“Improve cost estimation for systems, forces, and processes.”

Figure C-6. Customer Comments on Resource Analysis

Although not exclusively, Army analysis does tend to focus on warfighting issues. Customer comments did not question the importance of warfighting analysis, but did question whether a proper balance was maintained with respect to the allocation of Army analysis resources to warfighting versus “business” issues—issues that are ultimately related to but are not directly warfighting issues. These “business” issues are primarily related to the allocation of resources, and inefficient allocation of these resources certainly relates to the resources available for warfighting applications.

Near Term & Far Term View

“Increasing desire for rapid response analysis, constraining time for analysts to “think about” the problem and appropriate methodologies. Results in analysts relying on “standard tool kit,” rather than developing new innovative solutions.”

“Need to have people looking out over the horizon. Research analysis—see beyond firefights.”

“Need Army leadership stimulus to effect plus analytical community, but bulk of onus is on analytical community. Can’t depend on getting leadership guidance. Analyst community needs to work it from their end. Too important to depend on happening by chance. How to balance long term vs. near term.”

“Need a combination of quick reaction activities and longer term tool/process building activities. Still need longer term stuff, but % of how much quick vs. long term is changing.”

“Need balance—longer term view. Unfettered by special interests. Not sure we’re getting best buy for contract dollars.”

Figure C-7. Customer Comments on Need for Near- and Far-term View

The Army analysis community, like any business, must focus simultaneously on both its near-term capabilities and performance and the steps it must take to assure that it can meet customer demands in the far term. This is especially true in the current environment of decidedly more rapid change in the national security environment, customer demands, and available analytical resources. The development of new models, methodologies, and processes requires a significant amount of lead time.

CAA-R-01-23

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