

# **Developing An Acquisition Knowledge Management System**



**Report From Two-day Rapid  
Improvement Team Meeting  
Convened on November 8-9, 1999**

## Foreword

This Report summarizes the findings and recommendations produced by a Rapid Improvement Team chartered by David Oliver, Principal Deputy Under Secretary of Defense, and co-sponsored by Joe Ferrara, Director, Systems Acquisition, Ric Sylvester, Assistant Deputy Under Secretary of Defense (Systems Acquisition), and under the direction of the Change Management Center, led by William Mounts. The Rapid Improvement Team was chartered to explore options and forward recommendations for evolving the Defense Acquisition Deskbook into a robust knowledge management system that will enhance the productivity and effectiveness of the defense acquisition workforce.

The findings and recommendations in this report reflect the collective view of approximately 25 representatives of key stakeholders in the advancement of knowledge management within the defense acquisition community. Represented agencies included:

OUSD (AL&T) AR	Army Procurement Policy & AR
OASD C3I KM	Navy Acquisition Reform
Logistics Management Institute	ASA (ALT)
Defense Information Systems Agency	OUSD (AL&T) SA
Joint Staff	Marine Corp
Deskbook Office	PM for EA-21
Defense Contract Management Command	PEO IT
Defense Systems Management College	DON CIO
ARO PM for KM	SRA
Advance Technology Solutions Inc.	DRC
SAF/AQXA (Acquisition Working Group)	Navy Acquisition Policy & Deskbook Management Policy)

The Change Management Center extends its thanks and appreciation to all of the RIT participants for their time and contributions to this report.

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## I. Executive Overview

There is little argument that leveraging knowledge has become a critical imperative for the Defense Acquisition Community. What has not been as clear is the most efficient and effective approach to encouraging and supporting acquisition personnel across the Department of Defense to access, share and build knowledge to meet increased performance expectations.

The Knowledge Management Rapid Improvement Team (RIT) was chartered to explore options and develop specific recommendations to advance knowledge leverage across the Defense Acquisition Community, including recommendations for improving the value provided by the existing Defense Acquisition Deskbook. The RIT examined current gaps and barriers to knowledge sharing across defense acquisition agencies as well as successes, lessons learned and best practices in knowledge management both within the Department of Defense and from industry.

Based on its analysis, the RIT reached consensus on the following findings that form a platform for advancing the practice of knowledge management within the Defense Acquisition Community:

- There is no coherent vision for what knowledge management is and how it should be advanced that is shared across all defense acquisition stakeholders.
- The Defense Acquisition Deskbook, while reducing the mandatory DoD guidance from over 1200 pages to less than 130 pages, and providing an easy to access electronic reference source was not intended to be a platform for making a breakthrough in knowledge management.
- The greatest barrier to leveraging knowledge within the Defense Acquisition Community is not technology, but a combination of a culture that hoards information and lack of a process with an integrated digital environment (IDE) for building and supporting knowledge communities.
- Knowledge management as a core competency within the Defense Acquisition Community can be accelerated by providing existing communities of practice—i.e., *Defense acquisition personnel who share*

*common goals and challenges*—with a clear, easy-to-use and cost effective framework for increasing the volume and quality of shared knowledge.

- Advancing the practice of knowledge management will not be facilitated and is likely to be hindered by attempts to develop a centralized system for knowledge management that tries to be all things to all users.

Based on these findings, the RIT developed a recommended vision, scorecard, roadmap and implementation plan for advancing the practice of knowledge management across the Defense Acquisition Community. Highlights of these recommendations are:

1. Adoption of a vision for knowledge management that emphasizes the creation and support of knowledge communities first before making large investments in information management technologies.
2. The promotion of knowledge management kick-off events to bring knowledge communities together face-to-face to build ownership, sponsorship and the “cultural” anchors for building and sharing knowledge.
3. The use of commercially available software to support knowledge communities that offers the ability for users to build their own databases, discussion topics and applications within a common architecture that will facilitate cross-community linking and participation.
4. The development of standards for access, search and updating for databases (such as Deskbook) that will be linked to knowledge communities.
5. The adoption of both outcome measures (such as reduced decision cycle time and improved productivity per worker) and process measures (such as number of users, frequency of use, and start-up time) to monitor the return on investment in knowledge communities created and supported.
6. The creation and funding of a “lean” knowledge management support organization that will promote the creation of new knowledge communities and support existing knowledge communities while bringing a common vision, roadmap, scorecard and tools for knowledge management to the Defense Acquisition Community. This single organization will be responsible for configuration management and maintenance of the final “system” implemented.
7. The funding of 3-4 knowledge community launches in the first quarter of 2000 to test the model proposed by the RIT and to deliver immediate results to areas of priority concern to the Defense Acquisition Community such as Total Ownership Cost and Performance Based Contracting. Rapid funding is essential to meet this aggressive launch schedule. Funding details will be overseen and approved by the Knowledge Management RIT sponsors.

The balance of this report provides analyses and details for supporting these recommendations.

## II. Stakeholder Expectations

The RIT began its effort with a “listening” session to hear the voices of each stakeholder group with respect to their hopes and major concerns regarding the charter to develop a knowledge management system for the Defense Acquisition Community.

Outlined below are consensus points across those representing user groups as well as the knowledge management support staffs from the Services, defense acquisition university (workforce education and training) and OSD oversight and support activities.

### ***What We Hope To Gain From This RIT:***

- A clear, consensus vision of what knowledge management means for the Defense Acquisition Community.
- A proposal for advancing knowledge management that goes well beyond just improving the Deskbook.
- A proposal that deals with the end-to-end needs of the knowledge workers not just access to information.
- A proposal for an approach that is user-centered, flexible to meet cross department needs and incorporates best practices for knowledge sharing.
- A proposal that builds on existing successes within the Department of Defense and advances the goals of related initiatives such as Integrated Digital Environment, learner centered education and change acceleration.

### ***Concerns We Bring To The Table:***

- Not taking a big step beyond Deskbook improvement
- Recommending a grand, DoD-unique, bureaucratic and costly approach that doesn't get off the ground.
- Chasing a mission for which there is no funding and leadership support.

### III. Problem Analysis

The RIT took a “step back” to examine the case for taking action—i.e., why invest in a new, expanded approach to knowledge management for the Defense Acquisition Community.

The following key barriers, consequences on performance and payoffs of resolving were identified:

Barrier	Consequence	Payoff from Resolving
A. Lack of a common architecture for knowledge sharing across the acquisition community	<ul style="list-style-type: none"> <li>• Fragmented efforts</li> <li>• No interoperability</li> <li>• Higher total cost of ownership</li> </ul>	<ul style="list-style-type: none"> <li>• Faster, better and cheaper approach to knowledge management</li> </ul>
B. Lack of common understanding of who is the customer for a knowledge management system	<ul style="list-style-type: none"> <li>• Risk of “build it and they will come” syndrome</li> <li>• Big investment, little real value for users</li> </ul>	<ul style="list-style-type: none"> <li>• Lower probability of false starts</li> </ul>
C. Existing databases do not place information in context of user (i.e., what the users need to know for their job.)	<ul style="list-style-type: none"> <li>• Underutilized databases such as Deskbook</li> </ul>	<ul style="list-style-type: none"> <li>• Much higher return on costly database investments</li> </ul>
D. Lack of common standards for database ease of access, searchability and updating	<ul style="list-style-type: none"> <li>• Underutilized databases</li> </ul>	<ul style="list-style-type: none"> <li>• Much higher return on costly database investments</li> </ul>
E. Lack of process and system for sharing “tacit” knowledge, such as lessons learned.	<ul style="list-style-type: none"> <li>• Much of the richest, most valuable knowledge is not being shared</li> </ul>	<ul style="list-style-type: none"> <li>• Better leverage the “hidden knowledge assets” resident within the acquisition community.</li> </ul>

<b>Barrier</b>	<b>Consequence</b>	<b>Payoff from Resolving</b>
F. Lack of strong leadership support and incentive for sharing knowledge	<ul style="list-style-type: none"><li>• Creation of knowledge hoarding culture</li></ul>	<ul style="list-style-type: none"><li>• Much faster acceptance of knowledge management tools.</li></ul>

## IV. Best Practices Review

The RIT engaged in a brainstorming and knowledge sharing exercise to identify “best practices” and “traps and pitfalls” in implementing knowledge management initiatives. These insights were based on RIT participants’ personal experience and review of literature on knowledge management as well as input from industry provided by the Change Management Center.

### ***Top 10 Consensus Best Practices for Implementing Knowledge Management Initiatives (in rank order by importance to success)***

1. Prototype and start small (*versus investing in a large, “one size fits all” system*).
2. Start with believers—i.e., people who are interested in sharing and leveraging knowledge around a common goal or job function.
3. Plan for cultural change (*as well as information structure and technology change*).
4. Leadership must provide a clear mandate, support and resources that encourage and foster knowledge sharing.
5. Start at the end-user’s level of understanding and not how others think end-users should use knowledge.
6. Involve end-users from start to finish, from design to implementation to continuous improvement.
7. Assign a single point of responsibility for system maintenance.
8. Use open technology architecture that allows easy cross-community access to and transfer of information.
9. Knowledge should only need to be captured once when first entered. This will allow real-time visibility and avoid additional work of re-entering for the user.
10. Retain the best elements of existing systems.

### ***Top 10-Consensus Traps and Pitfalls To Avoid In Implementing Knowledge Management Systems (in rank order by importance to avoid)***

1. Designing a knowledge management system that is perceived by users as oversight and mandate driven versus user-driven.

2. Creating databases that provide information fatigue and overload due to lack of filters or good organization.
3. Falling into the “new and unique is always better” syndrome in designing the system.
4. Chasing technology as the end versus the end-user defining what results are desired and providing only the technology needed to support those results.
5. Assuming all users of the system have the same level of knowledge.
6. System designers thinking they have all the answers versus talking to end-users.
7. Attempting to fit everything into one, big system.
8. Collecting, categorizing and storing non-useful information/erroneous information, (misinformation).
9. Not creating incentives to encourage knowledge sharing.
10. Creating an infrastructure for knowledge management that is inconsistent or in conflict with how work gets done.

These best practices and traps and pitfalls were validated informally by Lt Col Mike Dorohovich, OASD C3I KM, who presented a success story on knowledge management within the Department of Defense.

## V. Vision For Change

Based on the learning from examining best practices and traps and pitfalls the RIT took several passes at developing a consensus vision for knowledge management within Defense Acquisition. The resulting vision statement reflected a common set of insights or beliefs about knowledge management forged from the RIT's dialogue, debate and knowledge shared.

These beliefs about knowledge management include:

- There may be no such thing as a knowledge management system in the sense that knowledge results from people interacting, not from an inanimate database.
- Knowledge management is about building, supporting and sustaining communities of practice—that is people who share a common need and goal that creates value for sharing and growing their body of knowledge.
- It is not necessary to join everyone in a common, mega data system. Rather, technology should be used to facilitate the connecting of communities to each other and to sources of information.
- Success is more likely by starting with “believers” and creating demand versus building a big infrastructure and having to sell people on its value.
- It is possible to launch knowledge communities and see results (*at the process level*) from knowledge management within 60-90 days.

The RIT converged these beliefs into a vision statement intended to guide the direction of knowledge management across the Defense Acquisition Community.

**Defense Acquisition Community  
Knowledge Management Vision**

The goal of knowledge management within the Defense Acquisition Community is to accelerate the creation of communities of practice as well as improve the effectiveness of existing communities of practice. Communities of practice are groups of defense acquisition professionals both across departments and within the Services and Defense Agencies that have a common need and desire to share and grow knowledge to enable better, faster and more cost-effective decision making and performance.

These communities of practice will be supported with a knowledge management roadmap that is user-focused, cost-effective and easy to implement. This roadmap includes the essential guidance, events, tools and access to databases needed to create and sustain productive knowledge communities.

The goal of this knowledge management roadmap is not to:

- ✓ Create one system for knowledge management that is costly, time-consuming and risky to build
- ✓ Aggregate all databases of information
- ✓ Dictate what knowledge end-users should share and how they should structure their community of practice.

Successful implementation of this vision for knowledge management will be measured by the following outcome and process metrics.

#### Outcome metrics

- ✓ End-user satisfaction
- ✓ Reduced decision making cycle time
- ✓ Workforce productivity

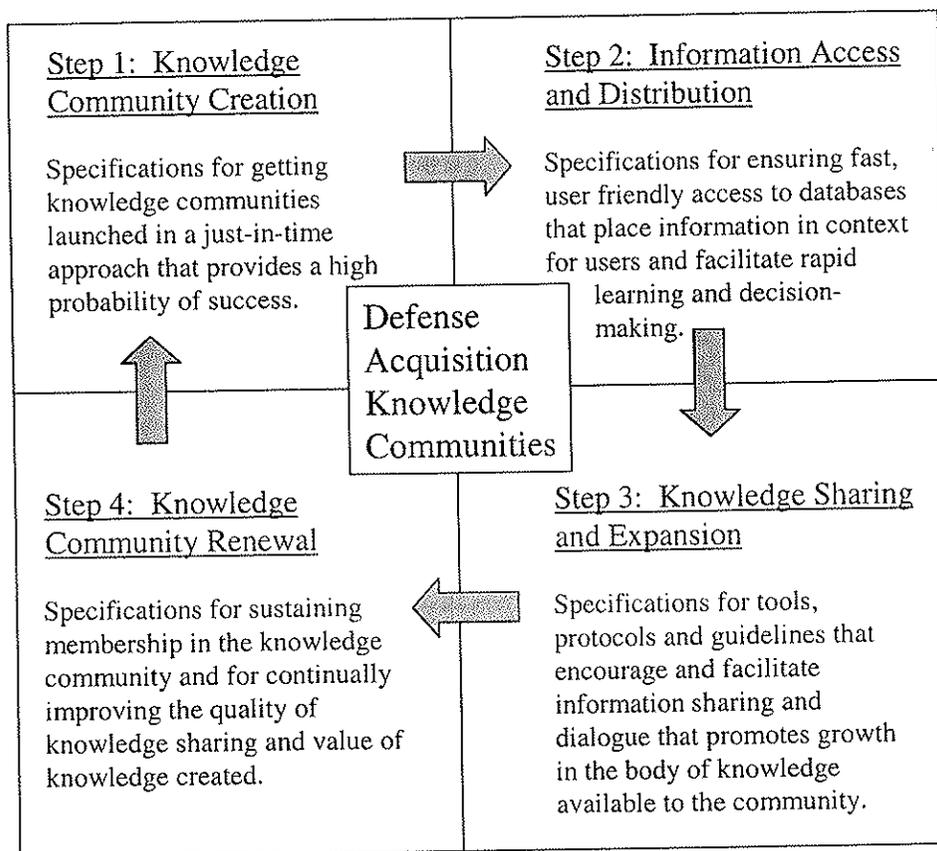
#### Process Measures

- ✓ Growth in number of knowledge communities and total users
- ✓ The cycle time from identification of need to launch of a knowledge community
- ✓ The list of launching and sustaining knowledge communities.

## VI Proposed Knowledge Management Model

The RIT moved from articulating a consensus vision for knowledge management to designing a roadmap for putting the vision into action. The knowledge management roadmap developed by the RIT used a best practice framework for launching, supporting and sustaining knowledge communities.

The knowledge management roadmap, outlined in Figure 1, overviews the four key steps to launching and sustaining knowledge communities. While depicted as key steps, the roadmap does not imply a purely linear and rigid sequence of actions. Each step of the roadmap represents a set of key requirements that are essential for producing a high return on investment in knowledge management.



**Figure 1: Knowledge Management Roadmap Overview**

The key requirements for each roadmap step are detailed in the exhibits following the roadmap overview.

### ***Step 1: Knowledge Community Creation***

#### Output Desired:

A defense acquisition knowledge community up and running within 60 days of identified need with the basic tools, protocols and guidelines in place to ensure immediate perception of value added by users.

#### Measures of Success:

- ✓ Cycle time to launch
- ✓ Cost per community launched
- ✓ Perception of relevance, ease of use and overall value by end-users

#### Requirements for Achieving Success (*in priority of importance*):

1. Clear identification and justification of the need for a knowledge community.
2. Enlisting of “early adopter” members both users and contributors
3. Design and execution of initial “face-to-face” kick-off event for the community.
4. Creation of virtual workspace including authoring tools and collaboration tools.
5. Development of knowledge dictionaries and taxonomy for content organization.
6. Identification of key databases or sources for explicit knowledge and establishment of easy-to-access links to them both electronic and person-to-person.
7. Process outlined for generating and capturing tacit knowledge through dialogue in the virtual workspace.
8. Communication by the knowledge community to other communities and potential new members.

## ***Step 2: Information Access and Distribution***

### Output Desired:

Easy-to-use, cost effective and fast access by the knowledge community to relevant and desired information in multiple media from any location.

### Measures of Success:

- ✓ Overall user satisfaction
- ✓ User “hits” to information source
- ✓ Ease of access (wait time)

### Requirements for Achieving Success (*in priority of importance*):

1. Ensure reliability of access (*you can “get in” when you need to*).
2. Ensure broad compatibility with the business process and working norms of the user group (i.e., data sources are relevant).
3. Access to reasonably complete explicit knowledge set and sufficient links for growing the tacit knowledge set.
4. Navigation system that provides drop-down menus, universal taxonomy and multiple search vehicles (i.e., keyword or fuzzy content).
5. Variety of access methods—multiple access points or locations and multiple access choices.
6. Profiling system for users (i.e., job description, usage preferences) so that information pushed to the user is tailored.
7. Variety of media formats to enrich information content (print, audio, video, etc.).

### **Step 3: Knowledge Sharing and Expansion**

#### Output Desired:

Knowledge community members that share, exchange and expand the body of knowledge relevant to their collective goals and needs.

#### Measures of Success:

- ✓ Usage of collaboration tools (*i.e., number of threaded discussion topics in process*).
- ✓ Volume of shared information (*i.e., number of new entries created in database*)
- ✓ Incentive/consequence system in place that encourages knowledge sharing.

#### Requirements for Achieving Success (*in priority of importance*):

1. Leadership support through modeling desired behaviors and holding people accountable for knowledge sharing.
2. Easy connectivity and learning of collaboration tools (*users should be able to quickly teach themselves how to get value from the tools*).
3. Development of incentives for knowledge sharing and knowledge ownership by the users.
4. Support by on-line librarians/knowledge managers who can help users place information in context to facilitate knowledge sharing.

## ***Step 4: Knowledge Community Renewal***

### Output Desired:

Maintenance and growth of membership in the knowledge community and continuous improvement in the body of knowledge.

### Measures of Success:

- ✓ Number of new members enrolled
- ✓ Ongoing user satisfaction
- ✓ Frequency of use of tools
- ✓ "Hits" to database

### Requirements for Achieving Success (*in priority of importance*):

1. Establishment of qualitative and quantitative metrics and feedback system.
2. Clear roles, responsibilities and procedures for knowledge community renewal.
3. Process for automatic updates of dynamic information.
4. Process for distilling information by subject matter experts.
5. Ongoing search for new information sources.
6. Ongoing recruitment and enrollment of new members.

## VII. Pilot Test Opportunities

The RIT brainstormed a comprehensive list of candidates for piloting the knowledge management roadmap across the Defense Acquisition Community. In total, 24 opportunities were identified. These opportunities were narrowed to a list of 12 candidates for pilot test based on potential impact on total performance of the Defense Acquisition Community.

The top 12 candidates in order of rated performance impact are as follows:

1. Simulation Based Acquisition
2. Performance Based Service Contracting (PBSC)
3. PEO/Program Managers
4. Acquisition Strategy Development
5. Total Ownership Costs
6. Paperless Contracting
7. Acquisition Reform
8. Information Technology Acquisition
9. Commercial Item Acquisition
10. Competitive Outsourcing and Privatization (Competitive Sourcing)
11. Risk Management
12. Electronic Commerce

This list of 12 was refined to a list of four high priority candidates for pilot test based on confidence in getting to launch and generating immediate results. The top four pilot candidates (and the rationale for their priority) are outlined below.

- Simulation Based Acquisition
- Performance Based Services Contracting
- Competitive Sourcing
- Total Ownership Cost Reduction

These four candidates were selected based on their current level of maturity (the level of work that has already been completed) and their potential in contributing to

acquisition performance improvement over the short term. The RIT members felt that these four candidates would be the best suited of the twelve to apply the principles of the knowledge management model and roadmap and in so doing, achieve accelerated results that would be beneficial in their application to other knowledge communities.

A detailed analysis of each priority pilot candidate is detailed in Appendix A.

## **VIII. Remaining Issues for Resolution**

The RIT identified the following list of unresolved issues that will require further study and resolution prior to rollout of the knowledge management roadmap.

A top-level unified long-range vision with accompanying goals and implementation plan roadmap.

Funding and personnel resource support for the knowledge management implementation efforts.

Decision on appropriate technology platforms to be used.

How to improve/leverage the DoD Deskbook and other tools/data bases.

Analysis of potential for tying knowledge management to I.D.E.

Potential for linking to other Rapid Improvement Team programs.

## IX. 60 Day Action Plan

The RIT reviewed its completed work with co-sponsor Joe Ferrara and collaborated on the following 60-day action plan to rollout the knowledge management roadmap.

What Needs to be done	Who Can do it	When Will it be done
Draft First Pass of Report	Change Management Center	Nov 17
Test with RIT Team/FB	RIT	Nov 24
Draft 2 <sup>nd</sup> pass Briefing	Change Management Center	Nov 30
Sell Document	RIT Sponsors	Nov 30
Test with Stakeholders	RIT	Dec 2
Get Top OSD Commitment	Joe Ferrara	Dec 17
Enlist Pilot Sponsors	TBD	TBD
Establish Pilot Facilitator Teams	TBD	TBD

## Appendix A: Defining Leveragable Communities of Practice

The following four knowledge management communities of practice were targeted as potential pilots for conversion to action implementation as quickly as possible.

### Simulation Based Acquisition:

What? – (What knowledge creates value?)

- Accredited models
- Use in various disciplines (for example – research, testing, requirements generation, contracting, manufacturing, logistics support, etc.)
- Lessons Learned
- Training
- Limitations of Simulation Based Acquisition
- Analogous

Why? – (Why is this knowledge critical to performance?)

- Reduces cycle-times
- Reduces costs
- Gets capability to the warfighters faster
- Allows reuse
- Enhances decision-making

Who? – (Who needs this knowledge most to be successful?)

- Acquisition personnel
  - Testers
  - Researchers
  - Contracting personnel
- Manufacturers
- Suppliers
- Logisticians

Where? – (Where is this knowledge found or created?)

- All over -
  - Labs
  - PEO/Program Management Offices
  - Industry
  - Defense Information Services

How? – (How should this knowledge be stored, accessed and distributed?)

- Stored “as is”
- Accessed through a gateway with description of information (i.e. uses, accreditations, etc.)

## **Performance Based Service Contracting:**

What? – (What knowledge creates value?)

Model RFPs	Surveillance Plans
Acquisition Strategies	Lessons Learned
Best Practices	SMEs
Case Law	Law and Directives
Comp General Information	GAO Reports and Information
Metrics – Industry Practices	Case Studies
Just in Time Training	Simulation plus generation
Potential vendors	Market analyses

Why? – (Why is this knowledge critical to performance?)

- Helps deliver quality/product service better, faster, and cheaper
- Avoids re-marking
- Increases efficiency and effectiveness
- Helps leverage resources

Who? – (Who needs this knowledge most to be successful?)

- Contracting Officer team
- Program/Project Manager team
- Customers
- Requirement generators
- Legal support
- Inspector General and other oversight and compliance agencies

Where? – (Where is this knowledge found or created?)

- Websites (Standard Procurement System, Lexis/Nexis, etc.)
- Corporate (human) knowledge
- Tacit knowledge
- FAR/DFAR/Acquisition knowledge banks (i.e. Deskbook)

How? – (How should this knowledge be stored, accessed and distributed?)

- Digitally
- Push/pull
- Real time
- Web-based access
- PC light
- Distributed databases

## Competitive Sourcing:

What? – (What knowledge creates value?)

- Process
- Models
- Best Practices
- Template SOWs/MEOs
- Evaluation templates
- Statutes/regulations/policies/guidance

Why? – (Why is this knowledge critical to performance?)

- One time event (no experience curve)
- Complex processes
- Strong emotional factors
- Impact on personal performance
- Reduces cycle-times
- Helps reduce congressional criticism

Who? – (Who needs this knowledge most to be successful?)

- Contracting Officers
- Commanders
- Source selection board/support personnel
- MEO development groups

Where? – (Where is this knowledge found or created?)

- Local installations
- Current A-76 victims
- A-76 support contractors
- Service information leaders

How? – (How should this knowledge be stored, accessed and distributed?)

- Open and protected environments (Sensitive to security issues – i.e. source selection/proprietary information)
- Collaborative systems
- Should not be initiated until after initial success has been demonstrated with the PBSC effort and then use should be made of PBSC data to leverage results of this effort
- Access to a distributed network or databases – tie systems together

## **Total Ownership Cost Reduction:**

What? – (What knowledge creates value?)

Historical baselines	Communication
Cost drivers	Lessons learned
Policies and guidance	Best practices
New initiatives	Estimating tools and techniques
Pilot program activity	Activity Based Costing/Management
Information	ERP
EVM	

Why? – (Why is this knowledge critical to performance?)

- Enhances good decision making (investment)
- Improves prioritization of resources
- Helps identify options (prioritized)
- Saves money
- Improves identification of non-value added efforts
- Facilitates trade-offs
- Assists in establishing comparative metrics
- Breaks the “death-spiral” syndrome

Who? – (Who needs this knowledge most to be successful?)

Program/Project Managers	Prime Contractors
Facility Managers	Logisticians
Operators	Programmers
Policy Makers	Resource Sponsors
Cost Estimators	S&T/R&D Communities
System Designers	

Where? – (Where is this knowledge found or created?)

Existing Websites	Policy makers
DAU curriculum	Sponsors
Deskbook	Pilot Programs
Literature	SMEs/Practitioners

How? – (How should this knowledge be stored, accessed and distributed?)

- Stored Information (Information owner maintains information)
- Access
  - Via Web/CD ROM
  - User-centered
  - Information placed in context (job, role, task, acquisition phase, functional area, etc.)