

**U.S. Marine Corps Logistics**  
**System Realignment and Categorization/Consolidation (SRAC)**  
**31 May 2002**

## **Introduction**

The Marine Corps logistics community currently uses over 200 Automated Information Systems (AISs) to support ground logistics. These systems utilize a combination of in-house developed application software, Government Off-the-Shelf (GOTS) products, and Commercial Off-the-Shelf (COTS) products. Many of these systems were originally designed to support stove-piped logistics functions and processes of the 1960's. As time passed, lack of an overall development plan created multiple systems with overlapping capabilities. These systems utilize a wide range of information technology, much of which is aging and difficult to integrate. Integration has been accomplished in the past through a rapidly increasing number of point-to-point interfaces, which are difficult to maintain over time and unreasonably complicated by the unplanned data environment.

The focus of this information paper is the consolidation of legacy information systems used to support Marine Corps ground logistics. Consolidation means migrating to a smaller number of systems without loss of functionality. It is a necessary first step in migrating from a very large number of legacy applications, data stores, and interfaces to a much smaller number of primarily COTS-based systems in a shared data environment.

The Marine Corps has approached consolidation through extensive categorization, analysis, and scoring of currently used systems. The results of this work are migration and retirement strategies supporting rational information system investment recommendations. The Marine Corps Systems Command (MCSC) program that accomplishes these objectives is called System Realignment and Categorization/Consolidation (SRAC). SRAC recommendations are being developed to support the operational and system architectures of the Integrated Logistics Capability (ILC), the Marine Corps' initiative for logistics business process development and system modernization. ILC is developing the architectures for planning, design, and execution of the Marine Corps' future supply chains.

To help in the development and execution of the SRAC process, the MCSC Product Group Director (PGD) Information Systems and Infrastructure (IS&I) contracted with Northrop Grumman Information Technology, Inc. of Stafford, Virginia and LABBLEE Corporation of Cambridge, Massachusetts.

## **The USMC 21<sup>st</sup> Century Challenge**

The *Marine Corps Strategy 21<sup>1</sup>* predicts a vastly different battle space in the 21<sup>st</sup> century, with highly mobile, scalable, and dispersed forces simultaneously engaged in multiple missions across a wide area of operation. As we enter the 21st century, the Marine Corps

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<sup>1</sup> Marine Corps Strategy 21, Gen J. L. Jones, Commandant's Guidance July 1999

must continue to be the premier expeditionary “Total Force in Readiness” for the Nation. This strategy requires a lean and lethal combat capability supported by agile business processes and state of the art logistics products and services. The challenge is to pay for today’s logistics capability while, at the same time, acquiring the new integrated capability required for tomorrow.

## ILC and SRAC

The Marine Corps determined in its ILC Initiative<sup>2</sup> that it can no longer afford to maintain a large number of Automated Information System (AISs) with overlapping functionality. ILC identified the need to reduce the number of legacy systems to make way for new capability as indicated in Figure 1.

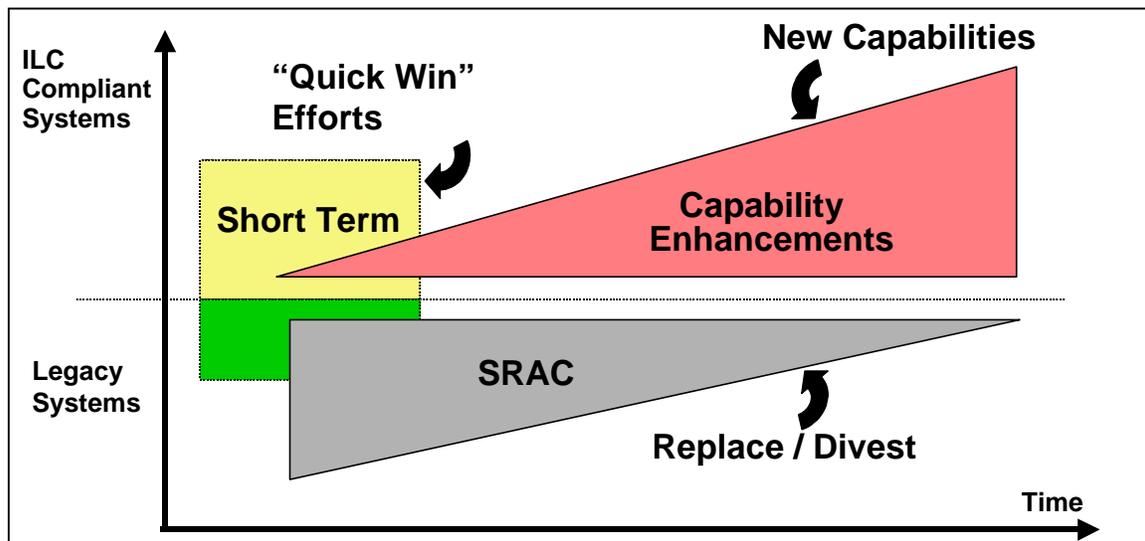


Figure 1. ILC Information System Transformation

ILC proposed three programs to deal with the information system transformation. The first was a short-term initiative to identify simple and obvious decisions that would result in “quick wins”. The second, SRAC, creates recommendations for consolidating logistics systems and frees up investments for new capability enhancements, including the employment of new COTS AISs and a Shared Data Environment (SDE).

## SRAC Objectives

The objectives of SRAC can be summarized as:

- Create a migration strategy for current AISs
- Recommend a schedule for AIS retirement
- Summarize gaps and integration capabilities for legacy migration systems

<sup>2</sup> Integrated Logistics Capability Initiative, Executive Checkpoint, January 26,1999

- Show how migration systems and integration capabilities support the evolving ILC operational and system architectures

An AIS scoring methodology, specifically developed for SRAC, is used to rate and compare AISs. The measurement criteria and scoring have been selected to represent the total impact of the AIS on warfighter support and on plans for supply chain integration. AISs are rated on the basis of functionality, provider support, technology, and cost effectiveness. SRAC overlap analyses are also used to identify potential migration systems and roughly determine the level of effort to re-engineer legacy systems to replace overlapping systems.

## **The Scope of SRAC**

SRAC applies to logistics functions for ground supply chain management (including aviation ground support) across the strategic, operational and tactical levels. It deals with IT investments supporting the following functional domains:

1. Transportation
2. Maintenance
3. Supply
4. Health Services
5. Acquisition
6. Engineering

The domains are listed in the order of priority for SRAC execution. A more detailed description of the first five domains is contained in MCWP 4-1<sup>3</sup>. The scope of acquisition is defined by the logistics and contract management portion of the Defense Acquisition Management Framework<sup>4</sup>, a pictorial representation of DoD Instruction 5000.1.

AIS lists from several references were examined to determine which logistics systems would be considered in SRAC, including the Marines Corps Logistics Information Resource (LOG IR) Plan<sup>5</sup>, the ILC Engagement 1, and the Y2K program. The SRAC AIS Composite List defines the legacy systems to be considered and acts as a summary of SRAC findings regarding AIS status as the program is executed.

Only AISs that are operational or will definitely be fielded within a 12-month period are considered in SRAC.

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<sup>3</sup>Marine Corps Warfighting Publication 4-1.

<sup>4</sup>DSMC Chart #300000R4, 2001.

<sup>5</sup> Marine Corps Logistics Information Resource Plan, Version 2.0, July 1998.

## SRAC Principles and Assumptions

SRAC is based on the following principles and assumptions:

- IT investments in AISs that are not used, supported, or supportable will be eliminated.
- The remaining IT investments are evaluated on the basis of how they support user functions within domains as defined by the ILC Operational Architecture (OA).
- Functional breakdowns will be defined by functional Subject Matter Experts (SMEs) utilizing the best available documentation of activities within a domain.
- Duplication of functions is a primary criterion for consolidating overlapping AISs.
- Criteria used in forming SRAC recommendations for high value AISs include relative value to the Marine Corps; total ownership cost (TOC); and functional, technical, and provider performance.
- COTS, GOTS and USMC-owned AISs are given equal treatment in all evaluations.

## SRAC Program Organization

Organizing to execute a complex SRAC process with over 200 AISs is a substantial challenge. Decisions to cancel programs and retire AISs can only be made at high levels of the organization. Fair and accurate evaluation of AISs can only be accomplished by end users and operational and system SMEs. At the same time, the SRAC program needs to be aligned with other on-going Marine Corps and Navy programs.

The SRAC program is defined operationally in Figure 2.

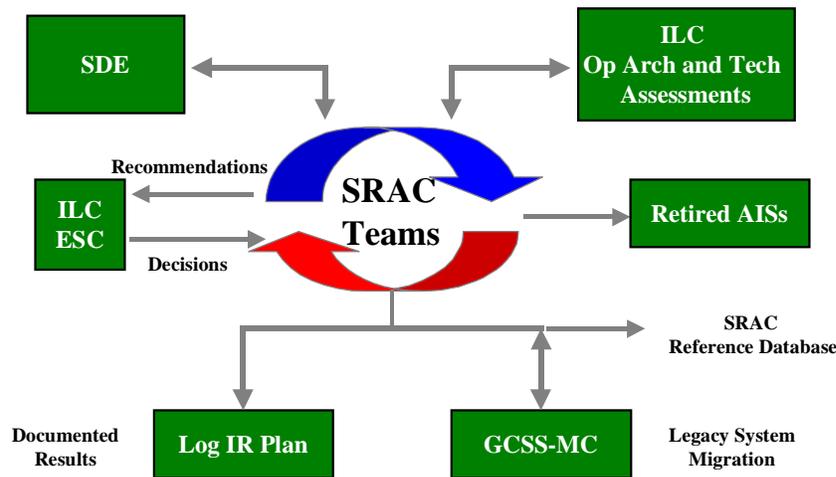


Figure 2. SRAC Operational Summary

The SRAC program accepts input from on-going ILC programs, including OA and Technical Assessment (TA) and authoritative source information from the SDE initiative. Using interlocking teams, SRAC utilizes information gathering, analysis, and decision-

making to evaluate AISs, propose migration strategies, and recommend legacy system retirements for each of the functional domains. Six domain teams, which consist of a mixture of functional experts, users, and systems SMEs were formed at the beginning of **SRAC, Phase 1**. After a kickoff workshop, each team was assigned a web-based team room where it meets virtually to exchange information. On-line survey forms were established to gather data from AIS users and program office personnel.

The SRAC Core Team develops the SRAC process and facilitates the SRAC Domain Team participation in the program. The Domain Teams work with the Core Team to analyze AIS data and to develop migration and retirement recommendations. The recommendations are reviewed and approved by the ILC Executive Steering Committee (ESC). The ESC may pass recommendations to the Combat Service Support Element (CSSE) Advocacy Board for major decisions. The ESC returns its decisions, resulting in retirement of AISs. The SRAC Core Team passes the decision results and supporting documentation to MCSC PGD IS&I for action and incorporation into the Global Combat Service Support - Marine Corps (GCSS-MC) management portfolio. SRAC results are documented along with other Marine Corps logistics programs in the USMC LOG IR Plan.

All data captured via web survey forms during the SRAC process becomes part of the SRAC Reference Database. The SRAC Reference Database is made available to support further SRAC work, acquisition programs to execute the migration strategies, and other related Marine Corps and Navy programs.

After all the domain recommendations have been completed, Cross-Domain recommendations are developed which support Marine Corps supply chain integration based on the ILC OA. This work also includes work with the SDE program. In the SDE work, AISs whose primary purpose is to provide reference databases, data query or transfer, and decision support capabilities are migrated into the SDE.

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## The SRAC Process

The SRAC program has four process phases:

- Phase 0 – Establish SRAC Process and Criteria
- Phase 1 – No-Value AISs
- Phase 2 – Low-Value AISs
- Phase 3 – High-Value AISs & Cross-Domain Solutions

The schedule for the SRAC Program is illustrated in Figure 3.

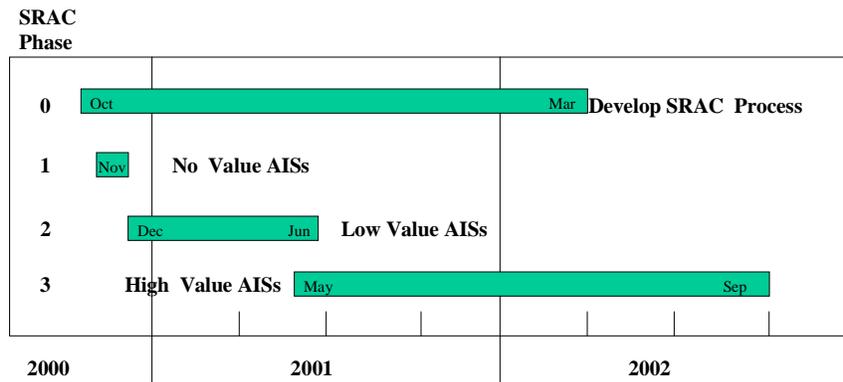


Figure 3. SRAC Timeline

Phase 0 has been under continuous development and improvement since October 2000. Phase 1 occurred in November 2000. Phase 2 occurred from February until June 2001. SRAC Phase 3 started in May 2001 with the Transportation Domain. At the time of this writing, Phase 3 domain recommendations have been approved for Transportation and are in review for the Supply and Maintenance Domains. The SRAC Phase 3 domain activities are expected to take an average of six months each, with final completion estimated in September 2002.

Figure 4 illustrates the SRAC process.

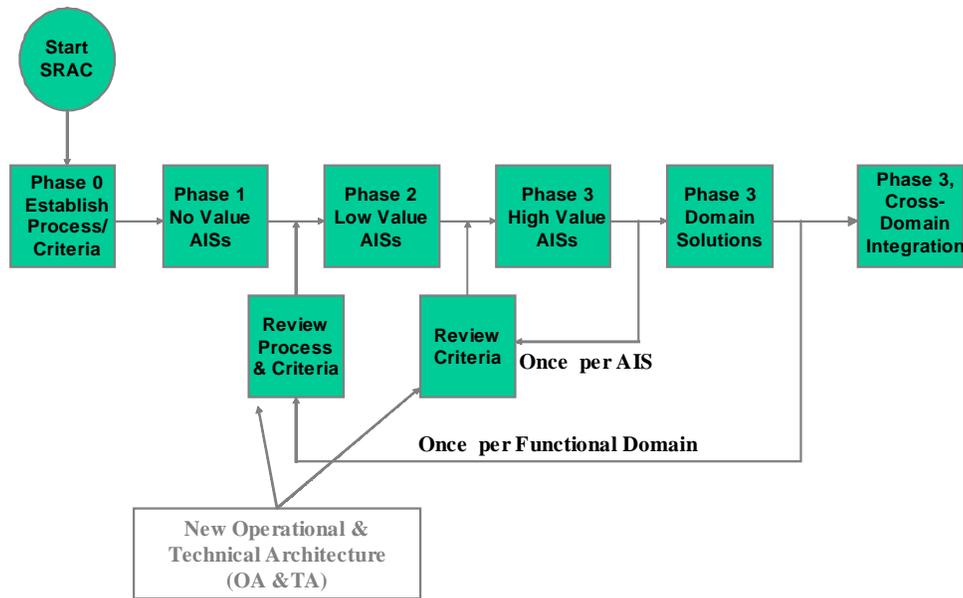


Figure 4. SRAC Process

At a more detailed level, the SRAC process is made up of over 50 steps associated with SRAC Phases 1 through 3 as described in The SRAC Guide<sup>6</sup>

### Phase 1 – No Value AISs

The USMC cannot afford to invest in logistics AISs that provide no value. During SRAC Phase 1, 30 AISs determined to be unused, unsupported, or unsupported, were retired.

### Phase 2 – Low Value AISs

In SRAC Phase 2, AISs considered not to be cost effective and having little negative retirement impact were recommended for retirement.

In SRAC, cost effectiveness is defined as AIS value divided by average yearly TOC. In SRAC Phase 2, a simple functional analysis of AISs was performed and the total number of active users was determined. Phase 2 AIS value was then determined by multiplying the number of functions supported by the number of active users. The impact of retirement for each AIS was determined as well as a 5-year TOC. The AIS value was then compared with the retirement impact and cost effectiveness to determine which AISs were to be recommended for retirement.

SRAC Phase 2 identified 13 Low Value AISs, six of which were recommended for retirement.

<sup>6</sup> USMC Integrated Logistics Capability SRAC Guide, Version 5.5, 29 March 2002.

### **Phase 3 – High-Value AISs, Domain Evaluation and Cross-Domain Integration**

It is assumed that any AIS which survives into SRAC Phase 3 has sufficient value that it cannot be eliminated without impact to users and USMC missions. In addition, retirement of these high-value AISs will probably require migration of functionality to other AISs. Furthermore, the migration systems identified in SRAC Phase 3 will have to support the ILC OA and eventually be integrated into the GCSS-MC portfolio of systems.

SRAC Phase 3 applies rigorous functional, technical, cost, and provider analysis to the remaining AISs on the SRAC Composite List. AIS analysis is used to support development of domain and supply chain migration strategies and AIS retirement schedules.

SRAC Phase 3 is broken into four parts:

Part 1 – AIS Categorization

Part 2 – AIS Evaluation

Part 3 – Domain Evaluation

Part 4 – Cross-Domain Integration

SRAC Phase 3 is kicked off for each domain with a workshop attended by SMEs representing the functional advocate and user communities for the AISs that support functions in that domain. The workshop produces a validated AIS list, a list of activities and tasks performed in the domain, and a mapping of the directly used AISs to activities and tasks. The functional decomposition to the activity and task levels is much more detailed than that used in SRAC Phase 2. It typically drills down to the fifth or sixth level of functional detail within Marine Corps logistics in order to obtain an accurate mapping of AIS functions.

In SRAC Phase 3, Part 1, AIS data is collected with web-based survey forms. Users are enlisted to determine how well the AIS supports individual domain tasks and the value of support available from the AIS provider. Program offices categorize the technology used in each AIS and the documentation available. The survey data is automatically collected in the SRAC Reference Database. Web queries of the database automatically calculate the AIS scores, which can be recorded for later reference.

The SRAC Phase 3 AIS scores, user counts, and TOC data are combined and summarized as illustrated by the Transportation Unit Move example in Table 1.

Table 1. SRAC Phase 3 Scoring Summary

	Funct Coverage (%)	Funct Score (%)	Provider Score (%)	Tech. Score (%)	Overall AIS Score (%)	Average TOC \$ (000's)	No. Users	Phase 3 Value	Cost Effect. Score
<b>AIS</b>									
CAEMS	27	83	78	44	68	390	1200	26765	55
CALM	32	80	83	Unk	54	0*	1200	30639	100*
MDSS II	71	85	81	44	70	584	1200	72663	100
TALPS	18	87	92	51	77	83	100	1563	15
TC-AIMS	27	77	71	44	64	584	1200	24965	34
<b>Legend</b>									
<b>Green</b>	<b>Superior Performance</b>								
<b>Yellow</b>	<b>Mediocre Performance</b>								
<b>Red</b>	<b>Poor Performance</b>								

The functional coverage is the percentage of the total activities and tasks performed within a domain that are supported by the AIS. Functional, provider, and technical scores are calculated from the results of user surveys and are averaged to obtain the overall AIS score. Average TOC is the average annual total cost calculated from the 5-year Phase 2 TOC worksheet data. The Phase 3 value of an AIS is the product of its functional coverage, functional score, and number of users. Cost effectiveness is obtained by dividing the Phase 3 value by the average TOC and normalizing to 100.

In SRAC Phase 3, Part 3, a SRAC domain team and the SRAC Core Team develop migration strategies for each domain. The migration strategies consist of a graphic migration diagram showing how the functionality of legacy AISs migrates to a smaller number of domain migration systems and approximately when AISs will be retired. The accompanying narrative text contains the rollout plan for the migration strategy. In many cases, multiple Courses of Action (COAs) are explored in this manner.

Figure 6 shows an example of a SRAC migration diagram.

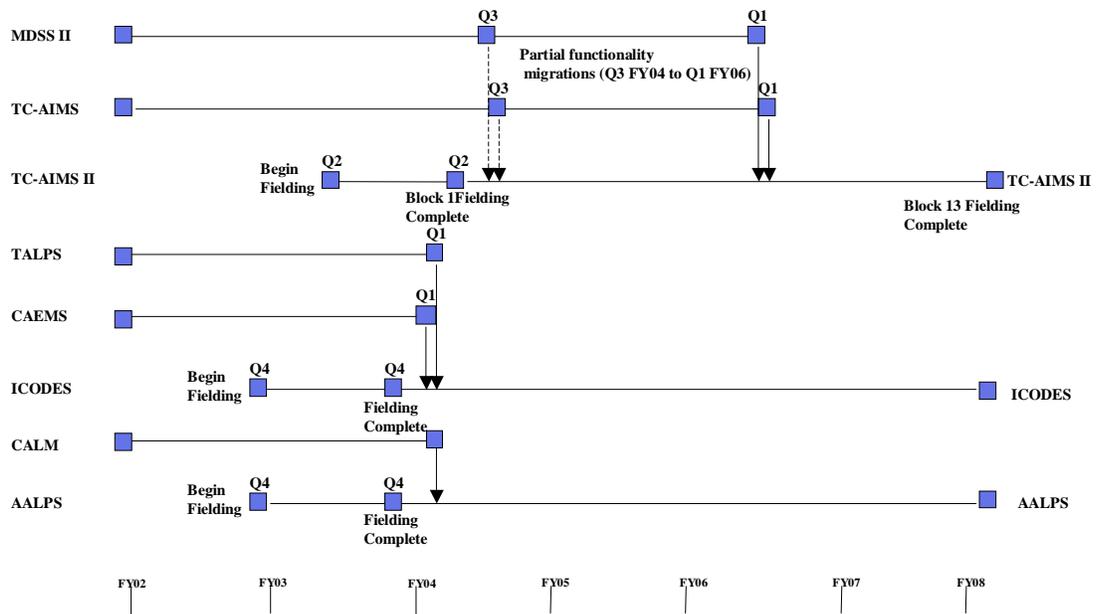


Figure 6. Unit Move AIS Migration, COA #1

The AIS scores are used to verify the migration strategy. Also important in the development of SRAC migration strategies are the functional overlap analyses performed by the SRAC Core Team. These are performed by comparing the AIS functional mappings to determine where two AISs support the same tasks.

Table 2 shows an example of a SRAC overlap analysis.

Table 2. Transportation Unit Move Overlap Analysis

	AALPS	CAEMS	CALM	I-CODES	MDSS II	SCM	TALPS	TC-AIMS	TC-AIMS II
AALPS	27	74	100	74	100	4	19	56	100
CAEMS	57	35	57	80	100	6	23	63	97
CALM	100	74	27	74	100	4	19	56	100
I-CODES	71	100	71	28	100	7	29	54	96
MDSS II	34	44	34	35	79	6	10	54	97
SCM	20	40	20	40	100	5	40	40	80
TALPS	62	100	62	100	100	25	8	62	88
TC-AIMS	25	37	25	25	73	3	8	59	100
TC-AIMS II	29	37	29	29	83	4	8	63	93
<b>Legend</b>									
<b>Green</b>	Number of tasks supported by AIS								
<b>Yellow</b>	Percentage of shared tasks supported between 61 and 80 %								
<b>Red</b>	Percentage of shared tasks supported between 81 and 100 %								

The overlap matrix in Table 2 is read left to right and up as follows. “X” % of activities and tasks supported by “Row AIS” are also supported by “Column AIS” where X is the number in the cell defined by the intersecting row and column. For example, 73% of the 59 activities and tasks supported by TC-AIMS are also supported by MDSS-II. AISs whose columns have a larger number of red cells are natural choices to be investigated as migration systems. Overlap analysis is the primary tool for comparing redundant AISs in SRAC Phase 3.

SRAC Phase 3 domain analysis also produces integration capability diagrams and gap analyses. Figure 7 shows an example of a SRAC integration capability diagram.

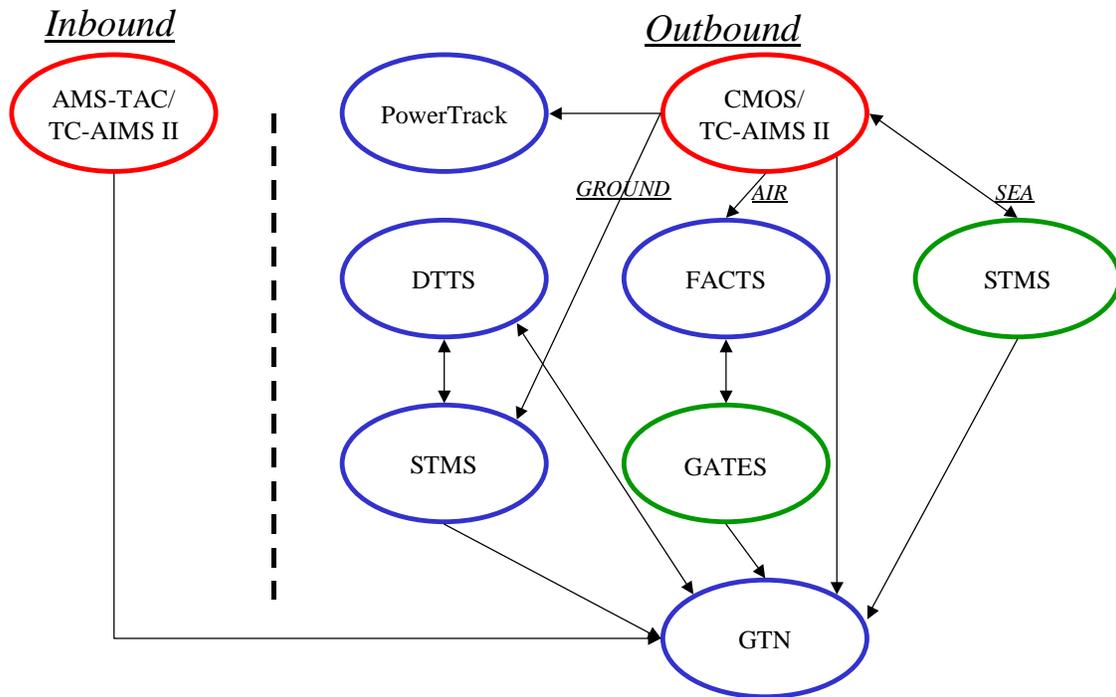


Figure 7. Transportation (Traffic Management) Integration Capability Diagram

The domain team develops and/or collects individual integration diagrams for migration systems identified in the SRAC Phase 3 migration strategy. Migration systems are defined as those legacy AISs that will remain in the GCSS-MC portfolio in FY07. They are the AISs appearing on the right hand side of the migration diagram.

The SRAC Core Team develops the SRAC Integration Capability Diagram (Figure 7), which is a synthesis of migration system integration diagrams across the domain. The domain integration capability diagram is reviewed with the domain team leadership, resulting in the development of a supporting narrative.

Gaps are lists of tasks that are poorly served or not served at all by the total set of domain AISs, or they may be tasks that are supported by generic tools such as word processing programs. Gaps are identified by examining the AIS functional mapping within a domain and soliciting comments from SMEs.

Integration capability and gap analysis are not taken into account as part of AIS scoring, but are saved for later consideration in ILC new capability development and GCSS-MC portfolio planning.

The average yearly TOC for each AIS and the retirement schedule associated with the migration strategy are used to calculate a projected yearly cost avoidance for each COA. Figure 8 shows a sample cost avoidance result.

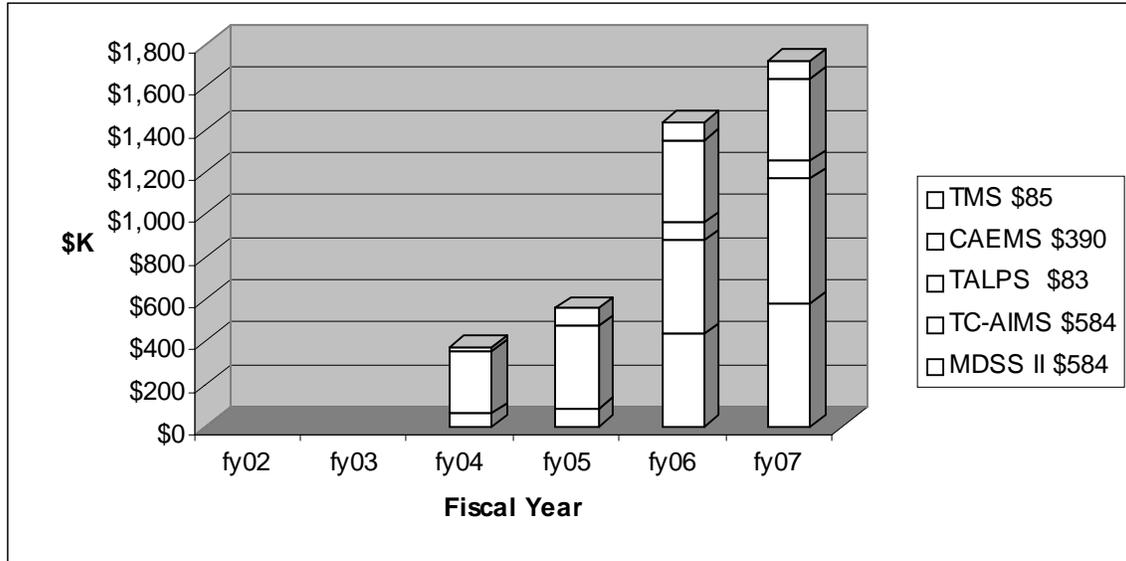


Figure 8. Cost Avoidance Chart for Transportation Unit Move, COA #1

All of the domain scoring and analyses are combined with a discussion of benefits and risks in a domain recommendation for SRAC Phase 3, Part 3. This recommendation is approved by the ILC ESC and MCSC PGD IS&I before becoming the basis of planning for legacy system migration, integration, and retirement in MCSC.

In SRAC Phase 3, Part 3 discussed above, all of the modeling and analysis is done on an individual domain basis using “as-is” functional models. In SRAC Phase 3, Part 4, the domain results are combined and harmonized to provide results for the entire scope of Marine Corps logistics. Also during Part 4, the results are re-interpreted in light of the ILC OA and coordinated with the results of other ILC programs (TA, MC Portal, and SDE) and planning for the Navy Marine Corps Intranet and GCSS-MC portfolio.

In SRAC Phase 3, Part 4 all of the recommendations of the individual logistics domains are evaluated relative to the “to-be” OA from ILC. Modules from SRAC migration systems and their interfaces are mapped into the latest ILC OA models. The ILC models are based on the Supply Chain Operation Reference (SCOR) Model from the Supply-Chain Council, Inc., a consortia of commercial companies that have banded together to investigate best practices and common models for supply chains<sup>7</sup>.

Another important part of SRAC Phase 3, Part 4 is joint work between the SRAC Core Team and the Marine Corps SDE programs to identify other legacy AISs whose functionality can be subsumed by integrated data warehouses and middleware tools.

<sup>7</sup> <http://www.supply-chain.org>

These AISs are predominantly those that are limited to providing decision support capabilities, data transfer, or data query capabilities.

After this work has been accomplished, a final SRAC report and recommendation is produced and the SRAC Reference Data is transferred to downstream Marine Corps and Navy programs to support system integration.

## SRAC Tools

SRAC tools include collaborative team rooms, on-line worksheets for collecting AIS categorization and scoring data, business rules and metrics for scoring AISs, templates for organizing domain migration and integration descriptions, and the SRAC Data Repository.

All SRAC teams have distributed members and operate virtually from Internet-accessible team rooms on the SRAC Knowledge Center managed by MCSC.

Figure 9 shows the network links used in the development and execution of SRAC.

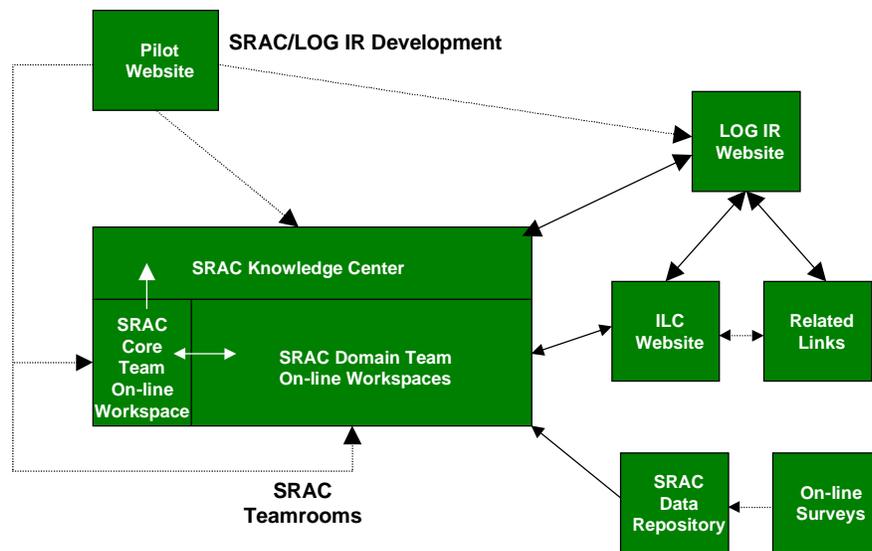


Figure 9. SRAC Development and Execution Network

The SRAC process, methods, and tools are developed and tested on an external pilot site before they are discussed and installed on the SRAC Knowledge Center. The Knowledge Center provides a collaborative environment with six SRAC Domain Team rooms and a SRAC Core Team room. The virtual team rooms allow team members to share documents, use team email, and have threaded chat discussions on subjects of interest. Schedule information and milestone commitments are displayed and a reference document library is provided for each domain and the entire SRAC program. All of this collaboration software is accessed through standard browsers over the web.

On-line worksheets are used to capture the AIS categorization data from a large number of SMEs around the world. Users of the AISs under consideration complete on-line surveys that evaluate the functionality and provider support of the AIS. The collected data and the scores derived from the survey form are captured into the SRAC Reference Database. Summary reports extracted from the database are transmitted to the SRAC team rooms for discussion. Figure 10 shows an example of a SRAC Functional Evaluation survey form.



Figure 10. Functional Evaluation survey form

After approval, the SRAC results are web-published on the SRAC Knowledge Center and summarized for inclusion in the LOG IR Plan. The LOG IR Plan will provide an interactive, web version of the USMC's logistics vision, strategy, guiding architectures, and information systems programs.

The SRAC team rooms are linked to the ILC website and other reference sites to share information on Marine Corps logistics transformation initiatives.

## Expected Results of SRAC

At the time of this writing, SRAC has resulted in orders to discontinue USMC investment in 36 unused and low-value AISs. The SRAC Phase 3 Transportation domain

recommendations have been approved for seven additional AIS retirements. Other Phase 3 recommendations are under development. For example, the Supply and Maintenance recommendations have not yet been approved, but it is expected that between 42 and 54 additional systems will be retired, depending on the COAs selected. These figures do not include additional retirements expected through joint work with the SDE program.

Five-year cost avoidance estimates for each SRAC Phase 3 migration plan were calculated and incorporated into the recommendation documents. For the AISs domains discussed above, the cost avoidance ranges between \$53.6M and \$26.2M, depending on the COAs selected. This does not include AIS retirements for the remaining domains or additional retirements resulting from joint work with the SDE Program.

It is expected that the scoring processes and rules developed for SRAC can also be used in rating alternative COTS or GOTS solutions for new capability development. The SRAC Guide is available to other DoD services and agencies that wish to reduce investments in redundant legacy systems.