

Rightsourcing Lessons Learned

Anthony R. DiTrapani

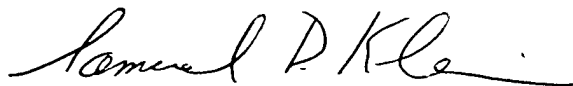
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13. ABSTRACT (Maximum 200 Words) CNA prepared this briefing for the Department of the Navy's Rightsourcing Process Action Team, under the auspices of the Total Ownership Cost Goal Management Board of the Assistant Secretary of the Navy (Research, Development, and Acquisition, ASN(RD&A)). In this briefing, we review the background of the study and our approach, identify those companies and activities that participated in our study, summarize the factors that we found affect rightsourcing decisions, and describe our key findings.				
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Rightsourcing Lessons Learned

Center for Naval Analyses

April 1997

CNA prepared this briefing for the Department of the Navy's "Rightsourcing" Process Action Team, under the auspices of the Total Ownership Cost Goal Management Board of the Assistant Secretary of the Navy (Research, Development, and Acquisition) (ASN(RD&A)).

Presentation Topics

- Background
- Approach
- Participating companies/activities
- Factors affecting sourcing decision
- Findings

In this briefing, we review the background of the study and our approach, identify those companies and activities that participated in our study, summarize the factors that we found affect “rightsourcing” decisions, and describe our key findings.

Rightsourcing

“Selecting the most advantageous source to accomplish a specific function for a weapon system in its life cycle... Specific functions may include any or all facets of design, engineering, manufacturing, in-service support, operation and disposal of the system.”

Implicit in this definition [1] of rightsourcing is the idea that “rightsourcing” is not necessarily “outsourcing.” Instead, it describes those actions necessary to ensure that certain functions are performed by the **best** source, all factors considered, and that the **best** source may well be the traditional organic source.

Background

- One of seven goals in the ASN(RD&A) Strategic Plan is “reduction of total ownership cost (TOC)”
- Strategic Plan Goal Management Board established three teams to develop plans to meet TOC goal:
 - Models and databases team
 - Reduction strategies team
 - **Rightsourcing** team

Under the direction of the ASN(RD&A), the Goal Management Board established three process action teams (PATs) to develop plans to help meet the Strategic Plan goal for “Reduction of Total Ownership Cost”:

- Models and databases PAT
- Cost reduction strategies PAT
- **Rightsourcing** PAT.

Background (Cont'd)

- CNA Task: Collect information about rightsourcing and competition initiatives going on in industry and other government agencies
 - Survey approximately 5 activities
 - Determine how they conduct analyses and decide on proper sourcing
 - Complete March 1997
- Document findings for sponsor review in April 1997

The rightsourcing team has the following tasks:

- Develop a framework to help PMs make rightsourcing decisions
- Identify specific programs as candidates for a pilot application of rightsourcing methodologies
- Identify lessons learned
- Recommend a DON-wide rightsourcing policy.

To assist with the third task, the PAT asked us to collect information about rightsourcing initiatives, to select five activities for detailed analysis, and to provide a briefing of lessons learned by March 1997 [2]; in addition, the formal task required CNA to provide documentation of the results of the study in April 1997 for sponsor review.

Approach

- Review available information
- Select participants
- Survey participants
 - “not for attribution”
- Determine lessons learned
- Provide findings

Our approach was to review available information, survey participants, determine from the participants their lessons learned, and report on our findings. All participants were assured that their comments would be “not for attribution.”

The questionnaire developed for surveying the participants is in appendix A.

Participating Companies

- Ameritech
- Commonwealth Edison
- Hughes Electronics
 - Hughes Aircraft
 - Hughes Missile Systems
- Johnson Controls
- Lockheed Martin
 - Information & Technology Services Sector
 - Federal Systems
- Northrop Grumman
- Unisys

Listed above are the companies that agreed to participate in our study.

Because of time and funding constraints, we were asked to assess only five activities; however, as shown here, we met with representatives from nine industry divisions at seven separate corporations. They include purely commercial companies, some companies that are providers of services and hardware primarily to the military, and some companies whose customer base includes both government and commercial activities. Moreover, because some of the divisions had, until recent mergers, been operating as divisions of other corporations, we believe the comments we received represent the experience and lessons learned from nine, rather than seven, corporate perspectives.

Other Sources/Contacts

- Center for Advanced Purchasing Studies, University of Arizona
- Defense Systems Management College
- Outsourcing Institute
- Aerospace Industries Association
- Deputy Director of Contracts, NAVAIR

As part of our review, we contacted a number of sources that had done research in the field, or that had personnel experienced in outsourcing policy and practice. All activities provided data and material on the subject of outsourcing, and many led us to industry officials who agreed to take part in our survey.

We obtained most of our information on government outsourcing experience from within CNA [3 and 4], from RAND [5], and from discussions with the Deputy Director of Contracts at NAVAIR [6].

Findings

Strategic Factors Influencing Sourcing Decision

- Currently have/don't have the capability.
 - Want to keep it?
 - Want to create it?
- Do we want to be in:
 - Engineering or manufacturing?
 - Engineering or integration?
 - System life cycle support?
 - All of the above?
 - Only one of the above?

“Don't outsource that which makes you what you are.”

Both strategic and tactical factors affect the outsourcing decision.

The strategic factors pertain to the basic questions senior officials address when determining whether an item or service should be provided by in-house personnel or by an outside source. Most of those we contacted said these types of questions are usually addressed for high cost items, but may not be addressed for lower cost items or items that have little impact on the company business base. Those who thought strategic factors were especially important were more likely to be higher in the organization and to feel that every organization should have some “core” items that are precluded from outsourcing.

As important as strategic and core considerations are, however, most respondents said that outsourcing decisions are more likely to be driven by tactical considerations, such as those shown on the next slide.

Tactical Factors Influencing Sourcing Decision

- Cost/cash flow
 - Capacity
 - Infrastructure
 - Risk
 - Jobs/political problems
 - People problems
- “Give customers what they *need*, not just what you’re making”**

Most decisions governing outsourcing are based on tactical factors, such as those shown above.

Although item cost is usually the major driver, some large organizations continue to supply more costly items from within because of existing infrastructure and the high costs of closing down facilities. Others are dissuaded from outsourcing because of potential labor problems or costly public relations problems associated with reducing jobs in some smaller communities where the company has a major presence. Thus “cost” is still a major consideration, but it can be the broader definition of cost that governs.

A decision to subcontract for an item can also be affected by the type of prime contract for which the item is needed. Cost-plus contracts or contracts for which the prime is the sole source are less likely to motivate the prime to outsource for marginal cost savings and potentially greater risk than are competitive fixed-price type contracts.

Reasons To Outsource (Surveyed Companies)

- 9.9 Reduce costs
- 3.4 Access to world-class capabilities
- 2.4 Free resources for other purposes
- 2.4 Cash infusion: make capital funds available
- 2.1 Resources not available internally
- 2.1 Improve organization's focus
- 1.1 Function difficult to manage
- 1.1 Meet other corporate goals
- 1.0 Share risks

This chart summarizes the results of our survey of all industry participants to determine their reasons for outsourcing. The number in the left-hand column is the average score for that item, on a scale of 1 to 10.

By far, the primary reason industry outsources is to reduce costs, although some respondents cited other reasons that to them were nearly as important, such as access to highly capable (world-class) capabilities, freeing resources (and reducing assets) for other purposes, and permitting management to focus on major corporate issues without the distraction of having to manage non-core items.

Other Factors Influencing Sourcing Decision

- Outsourcing can be an indirect result of other corporate objectives
 - Sales per employee
 - Size constraints
 - Return on assets
 - Small and disadvantaged business goals

We found that outsourcing is sometimes driven by corporate objectives independent of strategic and tactical factors.

For instance, sales per employee or corporate size constraints are metrics monitored by many corporate officials, and outsourcing can improve performance against these measures simply by helping to control growth of the workforce, irrespective of the economics of the outsourcing decision itself.

Similarly, return on assets can be improved by transferring assets to a third party, who in turn provides a service or product previously provided in-house.

Finally, some government contracts include goals for 5 percent of all subcontracts to be awarded to certain types of small businesses, such as socio-disadvantaged business and women-owned small business, in accordance with Public Laws 95-507 (1978), 99-661 (1988), and 103-335 (1995). Under some circumstances, these goals affect not only the portion of subcontracted items awarded to these classes of firms, but may also influence the total amount of work to be outsourced.

Items Outsourced

- Hardware fabrication and weapon software development
 - Of those surveyed, no significant trend toward more outsourcing
 - Tendency is to efficiently use existing capacity
 - Continued benchmarking helps determine if in-house costs are competitive
- Facility maintenance/operation, inventory management, office support functions
 - Significant trend toward outsourcing
 - Reduces costs
 - Provides better service

The companies we surveyed outsourced both hardware and software, as well as service-oriented functions, such as facility maintenance/operation, inventory management, and office support functions (ADP, payroll, reproduction services, etc.).

We found no obvious trend toward increasing the outsourcing of hardware and software items, but respondents said they are now more likely to check the market (“benchmark”) to ensure that their in-house efforts are competitive (i.e., that they are the “right source”), and this has often led to more efficient in-house operations without the need for outsourcing.

On the other hand, according to those surveyed, there has been a marked increase in the outsourcing of service-oriented functions, such as facility maintenance and operation, inventory management, or office support functions, for the reasons cited earlier.

Hardware Fabrication

- Outsourcing of hardware fabrication is more common if the product is a mature technology that has become essentially a “commodity” available at low risk from other sources:
 - In-house capability no longer unique
 - More than one alternate source is available
 - Examples: Machining, PWBs
- Outsourcing is less common if the product is an immature technology:
 - More difficult to properly specify
 - Fewer proven sources
 - Higher risk

When there have been changes to a company’s sourcing strategy for hardware or software, the product has typically been of a mature technology (for which the in-house capability is no longer unique), that has been revealed through the benchmarking process to be readily available from more than one source at relatively low risk.

Examples of items that major weapon system firms used to manufacture in-house, but now tend to outsource more frequently, are printed wiring boards or items requiring precision machining.

However, if an item is still of relatively new technology, outsourcing is viewed less favorably because of the difficulty of specification, the lack of proven sources, and the resulting higher risks.

Weapon System Software Development

- Software development for weapon systems is usually the last area to be outsourced by system integrators:
 - Constitutes the “brains” of the system
- Outsourcing is sometimes necessary due to lack of in-house resources

We found little enthusiasm for outsourcing weapon system software, because it is seen as the “brains” of the system and, therefore, the appropriate purview of the prime contractor/integrator.

There were exceptions, but they were necessary because the company lacked in-house expertise/resources and could not hire software people with the needed skills. In these circumstances, outsourcing of the total software job was the only alternative.

Strategic Planning

- Coordination among programs important when outsourcing. Otherwise:
 - Inconsistent decisions
 - Suboptimized decisions
 - Missed opportunities for bundling and economies of scale
- One company has established a “Strategic Sourcing” committee
 - Ensures company-wide consistent approach
 - But increases centralization and weakens program manager

There was general agreement on the need for a consistent *policy* regarding outsourcing within a company, but for most of the very large corporations we visited there had been no attempt to centrally control outsourcing throughout the corporation, across divisions, because it was deemed to be “too hard” or too much centralization.

Some division managers did feel it was important to maintain consistency within a division; otherwise, one project manager might outsource an item while another might allow it (or require it) to be done in-house. In those circumstances, neither the outsourced nor the in-house work is optimized, and profitability suffers.

One large division of a major corporation tried to solve this problem by establishing a “strategic sourcing committee” to ensure consistency, but others were not enthusiastic about such an approach, because it smacked of too much centralization and could dilute the program manager’s authority.

Of course, there is no one correct way to satisfy all requirements, and solutions need to be tailored to an organization based on its size and the effectiveness of its internal communications.

Training

- Normal subcontracting skills required
- No special training required for outsourcing, but
 - Employee awareness and continued communication and encouragement from management are necessary

Unlike most new management initiatives, it takes no special training to increase “rightsourcing” or outsourcing because it simply involves a wider application of skills, such as subcontracting and benchmarking, that already exist in most organizations.

Only increased employee awareness and continued communication and encouragement from management are necessary.

Contract Types

- Industry uses fixed-price type contracts as much as possible, with incentives:
 - Fixed price per transaction
 - Fixed price per item delivered
 - Fixed price per hour of effort delivered
 - First year pass-through costs with incentivized management fee; following years fixed price incentive

We found that, whenever possible, industry uses fixed-price type contracts for its outsourcing. Even if total work load is impossible to predict, outsourcing contracts at least specify fixed labor rates or average labor rates for the first year, and then use first-year cost data to fix the price for the following years.

Contract Termination Provisions

- Outsourcing contracts always provide for possible failure
 - Termination clause sometimes not enough
 - Many contracts include provisions for transition to a new contractor or return to in-house
 - Retaining some transition personnel after termination (6-18 months)
 - Training new source
 - Documentation recovery

All good contracts provide for the possibility of failure, and contracts for newly outsourced items are no exception.

Companies that completely give up their in-house capability when they outsource an item or service worry about the possibility of losing their source, and this has prompted some to include broad termination clauses that ensure that, in the event of termination, some personnel would remain behind to train their replacements. Similarly, contracts often contain special provisions for documentation retrieval; these provisions allow an outsourced function to be diverted to a new source, or brought back in-house, with a minimum of disruption. This is consistent with the observations of others [7].

Bundling

- Many contractors are intentionally reducing their supplier base by combining buys under one contract:
 - Larger contracts mean greater supplier interest
 - Volume discount
 - Less admin/oversight
 - Fewer interface headaches
 - More commonality/consistency

Once outsourcing is established at a firm, we found that the scope was commonly expanded to include more in-house effort, or, where more in-house work was not available or feasible, that the outsourced work was “bundled” with similar work from other divisions or other outsourced contracts.

Over time, this can mean greater supplier interest when the contracts are rebid, and can also reduce costs through economy of scale, reduce administrative and oversight costs, and provide more commonality and consistency of products and services throughout the company.

Cost Savings: Facility Maintenance, Inventory Management, Info Tech

- Of those far enough along to know savings:
 - One said 25-30% annually
 - One said 30% annually
 - One said “significant” savings
 - 15% labor costs due to better mix
 - 35% elevator maintenance costs
 - 25% cleaning costs
 - Others wouldn’t or couldn’t quantify
- Of those too early to tell savings:
 - One has a 30% savings target
 - Others are confident of cost reductions

As noted earlier, the biggest increase in outsourcing is in those areas that previously had not been considered appropriate for outsourcing, or for which outside suppliers were not available. These areas, such as facility maintenance, inventory management, and office support, are now being opened to competition and new ideas for the first time, and dramatic savings are consistently being reported.

In this review, three respondents reported savings in the range of 25 to 35 percent, and others were confident of, or targeting for, savings of as high as 30 percent. These savings are greater than the 10 to 15 percent average savings due to outsourcing reported by the private sector in 1996 [8], but are generally consistent with public sector results [8 and 9].

Cost Savings: Hardware/ Software

- Respondents' savings vary widely
- No clear trend toward more outsourcing
- Real value is in **continued** benchmarking
 - ensures that in-house work is keeping up with technology and marketplace changes

Savings from the outsourcing of hardware and software are not as dramatic as those realized for other types of buys, since hardware and software have been outsourced, or considered for outsourcing, for many years.

If there is a trend for these items, it is the tendency of industry to test the market more frequently now than previously to verify that their in-house work is keeping up, because technology and the marketplace are changing rapidly. With this continued benchmarking, outsourcing doesn't necessarily increase, but in-house work is more likely to be maintained at an efficient, competitive level.

Top Problems

Initially

- Resistance to change/low morale
- Difficulty identifying in-house costs
- Difficulty defining scope
- Incentives poorly structured or too narrow
- Learning curve for new sources

Long term

- Cost creep
- Diminishing manufacturing sources
- Controlling access to sensitive material

Of course, outsourcing has not been without problems. Problems encountered by industry are listed above in the order in which they were most frequently mentioned, and all apply to government as well. These problems are similar to those reported by others [10].

Most vexing are the long-term problems noted by industry, especially cost creep, which occurs after a new source is well established and alternatives have diminished; the continual diminishing of manufacturing sources; and the problem of controlling access to sensitive material in an era of mergers and acquisitions.

Common Mistakes

- Failure to fully understand in-house costs
- Failure to have an overall strategy that
 - Is consistent throughout organization
 - Addresses all functions for a region or an item
 - Considers the long term
- Failure to select best value supplier rather than lowest-cost supplier
- Failure to provide for change

These are the most common mistakes noted by industry. Most frequently mentioned was the failure to fully understand in-house costs before deciding to outsource, and failure to select on the basis of best value, rather than merely lowest cost.

Although all of these mistakes are serious, they can be avoided through proper planning at program inception.

Conclusions/Recommendations

- Identify in-house costs accurately
 - For comparison with industry
 - To structure incentives
- Ensure competition
- Define what is required, not how to do it
 - Ask offerors for alternatives
- Provide for the long term:
 - Options/ termination provisions
- Specify performance acceptance criteria
- Provide performance and cost incentives

The most consistently cited lesson learned is the need to accurately identify the in-house costs for any product or function to be outsourced. This is mandatory for any meaningful analysis of the cost of in-house versus outsourced work, and is essential as an aid in preparing incentive arrangements once a decision to outsource has been made.

Competition is recommended to obtain industry's best offers for comparison with in-house offers.

Solicitation documents should define what is required but not how to do it. Industry experience shows that it's best to ask offerors for alternatives, to improve chances for innovation and large cost savings.

Contracts should look ahead to the long term, with options for good performers and termination provisions for problem contractors.

And to ensure that all parties understand what is expected of the contractor, the contract should set forth clear performance acceptance criteria, and cost incentives for exceptional performance.

Conclusions/Recommendations (Cont'd)

- Use multifunctional team for source selection
- Don't suboptimize
 - Conduct rightsourcing analyses across organizational lines for more efficient bundling, fewer management interfaces
- Maintain continued communication with the contractor, but don't meddle
- Remember that non-core work seldom gets adequate management attention
 - Outsourcing can achieve world-class performance on non-core work

When evaluating and selecting contractors, experience has shown that a multifunctional source selection team is best, to ensure that all parties affected by the outsourced item have an input to the selection process.

When determining what to outsource, take care to enlarge the scope to include systems (rather than components), and as many related/interfacing items as possible, to minimize interfaces and provide more flexibility to the contractor.

After award, it's important to maintain good communications with the contractor, and to provide useful feedback, but not to meddle in day-to-day operations.

Finally, when determining what is appropriate for outsourcing, remember that under normal circumstances, non-core work done in-house seldom gets management attention unless problems develop. Therefore it can often benefit from the perspectives of an outside specialist, at the same cost or less.

Appendix A

Outsourcing Survey

1. When did you start to markedly increase the number of products/ services /functions you consider for outsourcing?

2. Why did you start to expand your outsourcing? Generally, what is your current approach and how does it differ from past practice?

3. Are you considering outsourcing for all products, services, and functions, or just selected ones? Are there any items you do not consider appropriate for outsourcing? How do you make this determination?

4. If not all functions are suitable for outsourcing, what criteria do you use to determine when outsourcing is appropriate?
 - Dollar level
 - Function complexity
 - Function type (core?)
 - New functions only
 - Other (explain)

5. What factors influenced your decision to increase outsourcing? (10= important factor, 5=moderately important factor, 0=not a factor)
 - Resources not available internally
 - Free-up company resources for other purposes
 - Function difficult to manage
 - Reduce/control operating costs
 - Access to world-class capabilities
 - Improve organization's focus
 - Cash infusion: make capital funds available
 - Share risks
 - Other

6. So far, has increased outsourcing met expectations? If you can, please quantify the benefits (or disadvantages) that you have experienced:

- Cost
- Schedule
- Quality
- Other

7. If you cannot quantify the benefits/disadvantages, what method/measure do you use to satisfy yourself that increased outsourcing is, or is not, an improvement over past practice?

8. Do you typically reassess your decisions (to outsource or not to outsource) throughout the program life cycle?

- Periodically?
- At specific program milestones?
- On an as-required basis?

9. Have you changed your organization's structure or processes (budgeting, reporting, program oversight, etc.) to accommodate increased outsourcing? How?

10. What problems/costs/limitations have you experienced with outsourcing so far, and how were they corrected?

- Initially
- Currently

11. Do you find that outsourcing provides products/services:

- With quality better than/the same as/not as good as your previous approach?
- With deliveries faster/no faster/slower than your previous approach?
- At costs less than/same as/ more than your previous approach?
- With long-term support that is better than/the same as/not as good as your previous approach?

12. Is your organization's outsourcing process documented?

13. Do your personnel receive any special training to promote outsourcing? What kind, and what duration?

14. Have you found that you require more than/less than/ about the same resources to manage and oversee your outsourced work, compared to oversight required when you do the work in-house?

- Do you witness operations or conduct other on-site inspections at your suppliers' plants? How frequently?

- Do you ever locate any of your personnel at your suppliers' plants? How many/How often?

- How much of your oversight of outsourced work, if any, is performed with outside assistance (consultants or other subcontractors, etc.)?

15. What reporting requirements do you impose on your subcontractors? Are these more or less than the reports you require from your in-house activities doing similar work?

16. What is your current job title?

- How long in this position?

- Any prior experience with outsourcing?

References

- [1] Naval Air Systems Command memo Ser SUP 4122F, *Total Ownership Cost*, 28 Oct 1996
- [2] Naval Air Systems Command letter to CNA, 4200 Ser AIR 3.2, 16 Aug 1996
- [3] Carla E. Tighe et al. *Implementing A-76 Competitions*, May 1996 (CNA Annotated Briefing 96-24)
- [4] Carla E. Tighe et al. *Case Studies in DOD Outsourcing*, Jan 1997 (CNA Annotated Briefing 96-62)
- [5] Nancy Y. Moore et al. *Commercial Outsourcing: Patterns and Practices (Preliminary Observations From Work in Progress)*, PM-548-AF, Apr 1996
- [6] Meeting with Naval Air Systems Command Deputy Director of Contracts, Mr. Steve Carberry, Mar 1997
- [7] Elaine L. Appleton. "Divorce Your Outsourcer?" *Datamation*, Aug 1996
- [8] *Defense Science Board Task Force on Outsourcing and Privatization*, Final Report, Aug 1996
- [9] Carla E. Tighe et al. *Outsourcing and Competition: Lessons Learned From DOD Commercial Activities Programs*, Oct 1996 (CNA Occasional Paper)
- [10] Leslie Hansen Harps. *Outsourced Logistics Report*, Oct 1996

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