The Joint Capabilities Integration and Development System and the Capabilities-Based Assessment

Lawrence G. Shattuck, Ph.D
Director, Human Systems Integration Program
Naval Postgraduate School
The slides in this presentation address the Capabilities-Based Assessment (or CBA). In many ways, it’s the 1st step in the Joint Capabilities Integration and Development System. The two blocks in the Interactive DA Framework that precede the CBA describe the security and defense needs of the nation and the concept of operations that flow from those needs. The CBA is the process by which we systematically assess the capabilities we have and the capabilities we need. We identify any gaps that might exist and make recommendations for how those gaps can be closed.

JCIDS is relatively new. It’s only been around since 2002. And, as with any new system, there are bound to be some growing pains. In fact, there have been some significant changes implemented for JCIDS and for the CBA in 2008 and again in 2009. We’ll talk about some of the changes in this presentation.

The three documents shown on this slide are excellent references for you. You’ll the CJCSI 3170.01G in the Quick Links section of the Module 3 Lesson Materials. The other two documents are linked to the Capabilities-Based Assessment block on the Interactive DA Framework because portions of those two documents are part of your reading assignment for Module 3.
You can trace the development of JCIDS back to this memo from Secretary of Defense Rumsfeld in 2002. Obviously he was not happy with the requirements system. Shortly after this memo, JCIDS was ‘born.’
These are the three foundational principles that underlie JCIDS.

First, JCIDS must describe needs in terms of capabilities. In the previous system that developed requirements (rather than capabilities), solutions often were proposed when it was even clear what the military objectives were. For example, instead of saying we need more UASs, which is an example of a solution, it’s more appropriate to say that we need a more robust reconnaissance capability. The capability would not only justify a need but it would also allow for alternative solutions to achieve that capability.

Second, JCIDS must derive needs from a joint perspective and from a new set of joint concepts. It’s important to link strategic ends to warfighting means. The needs not only must be based on the way we do things now but also must how we might do things in the future. The idea here is to force DoD to examine a broad array of military problems and potential solutions.

And third, a single general or flag officer will oversee each DoD functional portfolio. This will ensure that JCIDS activities will not focus on a solution set that is too narrow.
A JCIDS Capabilities Based Assessment originally consisted of four sequential components: the Functional Area Analysis (FAA), the Functional Needs Analysis (FNA), the Functional Solutions Analysis (FSA), and the Post-Independent Analysis (PIA). The PIA didn’t last very long because having someone review decisions in an “independent” manner already made by the JROC just didn’t seem to make sense or be feasible.

In 2008 the terms FAA, FNA, and FSA were eliminated. Here’s why.... The original idea was to give an issue to a Functional Capability Board, that would divide the issue into functional areas, hand those areas to other FCBs for assessment, and compile the results. This approach didn’t work.

Also, it didn’t apply to CBAs that were done by integrated teams. And, dividing the assessment into FAA, FNA, and FSA phases created artificial decision points that added staffing time but no real value to a CBA.

Finally, the JROC has deemphasized solutions analyses. They use the CBA to identify gaps and help advise which gaps require action. The JROC is not looking to provide specific solutions to the non-materiel and materiel communities. However, a CBA still has to consider solutions, because it has to still make recommendations on what to do. But, the Analyses of Alternatives (AoAs) is done by the acquisition community.

As stated earlier, a Capabilities-Based Assessment starts the JCIDS process. If the CBA identifies some significant capability gaps, then an Initial Capabilities Document (or ICD) is developed. The ICD reports on the results of the CBA and also serves as a decision document that helps determine whether or not a materiel solution is required.
This figure is taken from the CBA User’s Guide. It’s an extremely simplistic view of the CBA process. Nevertheless, it does give you an idea of the major activities involved in a CBA.

The first step is to consider what guidance exists in the strategic guidance documents and what guidance you have been given by those who tasked you to do the CBA. The next step is to understand the capability you’ve been told to study. The third step is to determine how well we’re doing with respect to that capability now and how much of that capability we’ll need in the future. In the final step, you make recommendations that will close the distance between the capability that we have now and the capability that we need.
Not all CBAs are alike. Although the CJCS Instruction and the CBA Policy do not list different types of CBAs, in reality, over the last few years that CBAs have been conducted, they tend to fall into categories. The six categories on this slide are found in the CBA User's Guide. The categories are based on what the CBA is focused on or what it seems to emphasize. Do these categories hold true for your experiences? Do all of the CBAs you’ve read or written fall into one of these six categories?
Having reviewed numerous CBAs, the JROC has identified attributes they want to see in future CBAs. CBAs should be concise. Some guidance suggests a length of no more than 15 pages.

CBAs should not be overly rigorous or detailed. If these recommendations to be concise and avoid rigor trouble you, don’t worry. There’s still plenty of rigor built into the CBA process.

One CBA I worked on took well over a year and the final report was in excess of 300 pages! I suspect few people – if anybody - even read it. Shorter, more concise CBAs are more likely to actually be read and understood by members of the JROC and others in the JCIDS and the acquisition system.

In addition to being concise, the JROC would like to see most CBAs completed in 90 days. If the issues are complex and there’s a high degree of uncertainty, then the JROC would expect the CBA to be completed in no more than 180 days.

Probably the most important aspect of the CBA is the recommendation. That’s what those who are working on the CBA should focus on – getting the recommendations right.
As we’ve already discussed, the JROC expects CBAs to be more concise and timely than they’ve been in the past. But they still need to be thorough. This slide lists the elements that the JROC is looking for in a CBA. Later, we’ll talk about the specific format or structure of the CBA.

Scenarios are used to test our capability against a specific threat. Scenarios define the depth and the breadth of the opponents and environments that we are assessing and the planning period. Just about all of the scenarios should be based on OPLANS, CONPLANs, or Defense Planning Scenarios.

Examples of functions are force application and battlespace awareness. Part of the CBA involved determining which functions you will consider in your assessment and which you will not.

The solutions that you consider may be constrained by national or international policies, treaties, and so on. The various solutions that are developed are assessed in the context of the scenarios that have been developed.

Capabilities are our ability to achieve our objectives in a military operation. These capabilities have to be examined within the context of the scenarios and the stated objectives.

It’s important to state up front in the CBA what concepts of operation or CONOPS are being considered. For example, the study lead, based on the tasking, may choose to consider only kinetic combat operations but will leverage the combat capabilities of all military services.

Measures of effectiveness (or MOEs) provide the analytic framework for the CBA. Inevitably, the study lead will have to make tradeoffs with respect to MOEs. The more MOEs, and the more specific and precise the MOEs, the more challenging and time-consuming the CBA process will be. But, a more detailed analysis will also prove to be more useful for the JROC.
All too often CBAs are tasked to officers, government civilians, or contractors who typically have little or no experience in JCIDS or in conducting these type of studies. The best thing they can do to ensure their success is to surround themselves with good people, with people who are knowledgeable in the critical aspects of the CBA study process. This slide lists the type of people that a CBA study lead should recruit for his or her team.

**Expertise Necessary for Conducting a CBA**

<table>
<thead>
<tr>
<th>Adversary expertise</th>
<th>Study design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical ability</td>
<td>Study management</td>
</tr>
<tr>
<td>Bureaucratic agility</td>
<td>Cost estimation</td>
</tr>
<tr>
<td>Communications ability</td>
<td>Technical knowledge</td>
</tr>
<tr>
<td>Doctrinal knowledge</td>
<td>Policy knowledge</td>
</tr>
</tbody>
</table>

Someone with adversary expertise will be able to provide credible estimates of the range of options open to an enemy.

A seasoned analyst with the appropriate tools and techniques will be invaluable.

A person who is comfortable with the bureaucratic process will be able to negotiate among all the competing interests that inevitably will arise.

A skilled communicator who can produce written documents and oral presentations that are clear, concise, and believable is essential.

Someone knowledgeable in the relevant doctrinal issues will be able to describe how things are done now.

A person who can design a logical and coherent study design will be able to ensure that the CBA satisfies the tasking and provides appropriate linkages to strategy.

A skilled study manager will know how to organize and execute the CBA and keep the team on schedule.

A cost estimator who can forecast the costs of the options of interest will ensure that the CBA
This figure in this slide is from the CBA User's Guide and shows the major steps in the CBA and their relationship with one another with respect to time. The process starts with the CBA study lead is tasked to conduct the CBA and asks the question, “Why this CBA?” At this point, assuming there are sufficient people available, four tasks can begin simultaneously – the doctrine review, the literature review, the search for expertise, and the strategic guidance review. As you move from left to right in the figure, you can see which tasks can be completed in parallel and which tasks have to wait until the completion of a preceding task.
One of the first steps in the CBA process is defining the military problem. The figure on this slide shows how that’s done. Reviewing and selecting the right scenarios is an important part of the process. We’ll talk more about scenarios later. As you can see, scenarios help specify the conditions that we expect to confront Warfighters. Given those conditions, functions and tasks are selected for analysis. Then, measures are developed. These measure are the standards that will be used to analyze the solutions.
It’s extremely important to select the right scenarios for the CBA. The scenarios should not be so narrow that they fail to cover the range of potential enemy threats. And they should be specific enough so that it’s possible to analyze them as quantitatively as possible. Here are four reasons why scenarios are so important.

First, scenarios give us a way to assess our capabilities. We can’t determine whether DoD has a capability without testing it against real enemies with real objectives, forces, and geography.

Second, scenarios provide a way to connect our assessment to the strategic guidance. Using fictitious nations with notional capabilities is no longer acceptable. CBAs should be based on credible threats from actual, credible potential adversaries.

Third, scenarios provide a way to test the concept against the entire range of defensive needs of the U.S. If chosen properly, they’ll ensure we don’t focus on certain threats or adversaries to the exclusion of others.

And fourth, scenarios cause us to confront the full range conditions, including all enemies, environments, and access challenges.

The National Defense Strategy has divided all future security challenges into these four categories:

Traditional challenges come from nation-states that use recognized military capabilities and forces in well-understood forms of conflict.

Irregular challenges come from entities using unconventional methods to counter the traditional advantages of stronger opponents, of those who are skill in traditional warfare.

Catastrophic challenges arise when entities acquire and use weapons of mass destruction.

And, disruptive challenges come from adversaries who develop and use breakthrough technologies to negate current U.S. superiority.
After the scenarios have been selected, you have to determine the military objectives of each scenario and extract the objectives that your CBA topic supports. To do that, you’ll need to know how selected capabilities are provided now and how we expect they’ll be provided in the future.

The CBA study lead should use the working group to assist in this process. The group will need the scenarios and the capabilities and should then collectively figure out how to achieve the necessary objectives. This slide shows how to go about doing this.

After the military objectives have been determined, the next step is to take the doctrinal CONOPS you’ve identified and create an overarching task structure for the CBA. The list should not be too long or too detailed. As an example, the Global Strike Raid Scenario CBA used a task structure with just 10 major tasks. Trust me, it’s easy to get both long and detailed. Do your best to restrain yourselves!
The next major step is to conduct a needs assessment. The figure on this slide show you an overview of the needs assessment process.

In general, here’s what a needs assessment consists of:

You need to identify the capability gaps and link them to operational scenarios

You need to estimate the impact of capability gaps in terms of their risk to the mission and risk to the military forces being used. In other words, does the capability gap jeopardize the ability to achieve the objectives of the scenario? And, does the capability gap create the potential for significant and unacceptable losses of our Warfighters?

You need to describe the effects of the capability gaps on other organizations and groups such as our allies and noncombatants.

You need to determine whether the capability gaps are due to one of the following things:
  • the proficiency of our military forces. That is, our inability to achieve the relevant effect in specified conditions.
  • the sufficiency of our resources. That is, our inability to bring the needed force to bear due to force shortages or other commitments.
  • or, policy limitations. That is, our inability to use the force as needed due to operational constraints

And, you also need to prioritize the gaps based on the estimated operational impacts and strategic guidance.
As I said earlier, a detailed solutions analysis is no longer a formal CBA requirement. But, the CBA still has to provide advice on the type of a solution – if any – that is recommended.

In the end, either an ICD will be written that makes a recommendation to solve the problem with a materiel solution, or, a DOTMLPF Change Request is written to recommend a non-materiel solution.

This slide shows the process involved in developing solutions and making recommendations. The column on the left shows the major steps. Those steps are informed by the activities depicted in the blocks in the center and on the right.
There’s no prescribed format for a CBA but the User's Guide does suggest that the areas on this slide be addressed.

The CBA should reference the DoD guidance and the applicable joint concept and scenario documents that are directly related to the CBA.

The purpose should be short – about a paragraph that states the purpose and describes the content of the study plan.

The background and guidance should address the question of why the CBA is being done and cite the DoD guidance relevant to the CBA.

In the objective section should describe the type of CBA the desired products.

The scope is the most important part of the CBA, it is important to take the time and the space to ensure that the scope is correct.

The methodology is a discussion of how the study will be (or was) carried out.

The organization and governance section describes how the CBA team will work with external organizations, to include things like web sites and coordination procedures. This section should also You should also describe the governance structure of the CBA, including oversight committees and general or flag officer steering groups.

The projected schedule section is short and contains the major staff actions and milestones that are known.

The responsibilities section lists the organizations from which support is expected.
This slide provides you with a list that the JROC wants to see in the CBA report. Nothing in this list should be a surprise to you. If you’ve followed the CBA process you’ll be able to address all of these issues easily!

Capabilities Based Assessment (Major Outputs)

- Description of mission and military problem being assessed.
- Identification of tasks to be completed to meet the mission objectives.
- Identification of capabilities required.
- Assessment of how well current or programmed force meets capability needs.
- Assessment of operational risks where capability gaps exist.
- Recommendations for possible non-materiel solutions to capability gaps.
- Recommendations for potential materiel approaches (if required).