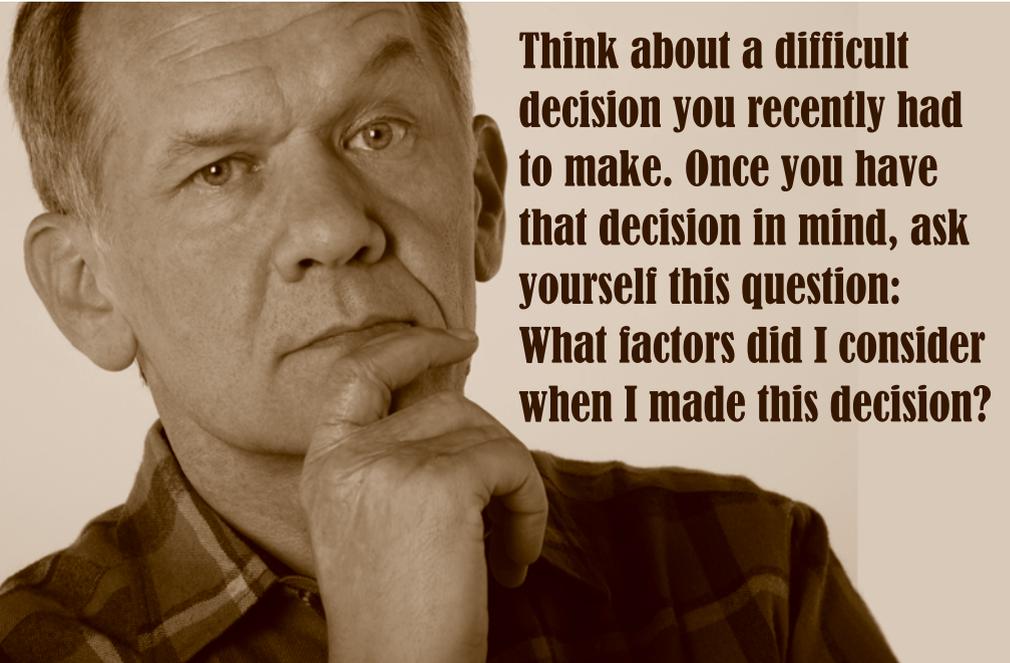


Critical Thinking in Defense Acquisition

John F. Horn



Think about a difficult decision you recently had to make. Once you have that decision in mind, ask yourself this question: What factors did I consider when I made this decision?

Much emphasis has been placed on improving processes and procedures in order to improve performance. While this may have a positive effect, I'd like to argue that process improvements alone will not correct the problem. The challenges presented by the complexities of defense acquisition will require trained, experienced managers capable of critical thinking at all levels within the acquisition community to move decisively towards enhanced decision making and more effective program management.

Complex Decisions in Complex Times

In peacetime, meeting cost and schedule requirements are the driving imperative, but during

Defense acquisition is a challenging activity. Countries spend vast sums of public money to maintain national security and homeland defense efforts, only to observe recurring instances of programs failing to live up to performance needs along with schedule delays and substantial cost overruns. For many taxpayers, such inefficient expenditure of defense funds provides an opportunity to argue those funds could have been spent more wisely on improving the socioeconomic wellbeing of the population as a whole.

As a result, there has been considerable scrutiny of the way defense acquisition is undertaken and the outcomes from such activities. In the United States, that scrutiny has come primarily from the Government Accountability Office, at the direction of Congress. Nevertheless, despite this attention, there continues to be overall mixed performance in achieving cost, schedule, and performance goals/objectives.

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wartime operations, the need to meet performance criteria is paramount. Defense program management differs from commercial project or program management in that if weapons systems do not operate as expected, then numerous personnel may die.

Defense acquisition includes other features that distinguish it from other project management environments. It brings together both public and private sector environments (especially with the growing use of contractors in partnering arrangements to provide logistics support), and it has a myriad of stakeholders, including the general public. Taxpayers have a dual focus—the trade-off between public safety/defense and socioeconomic spending, and the consequences should military operations fail.

The world environment has now changed as a result of diverse threats. The United States' involvement in Iraq and Afghanistan has increased the pressure to shorten the acquisition cycle. There is still a need for cost efficiencies, but operational imperatives are the highest priority. Today's budgets are limited, and development time is constrained; therefore, new processes and innovative thinking are needed to solve traditional problems. The more processes are amended to facilitate financial efficiencies,

the greater the need for enhanced decision making to maintain the balance between financial and operational imperatives.

Conducting program management in today's environment is a complex, multivariable, multiple-stakeholder process, made more risky because success is usually judged by outcome and not by the quality of decisions. Because of the complexity and changing environment, a great decision can quickly be transformed into a horrendous outcome. Unfortunately, good decisions do not always result in good outcomes, and sometimes poor decisions are remarkably successful. Because of that, program management is fraught with second-guessing and addressing continuously changing priorities. Technological improvements are expanding at an exponential rate, requiring flexible technology management insertion processes and a close relationship between contractors and government acquisition agencies.

Critical Thinking

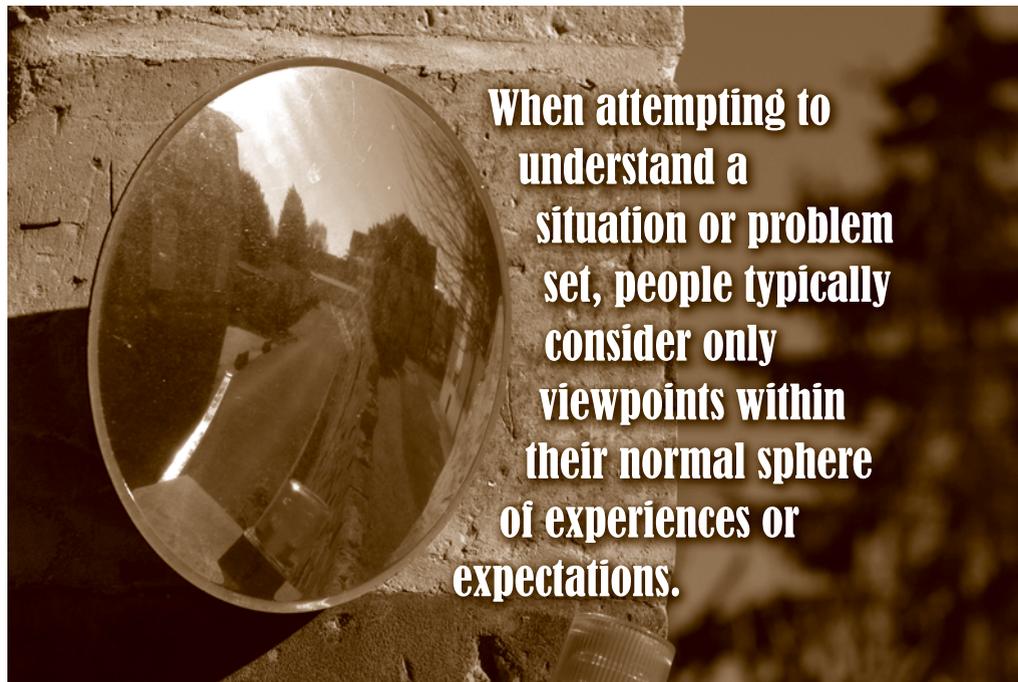
The growth of complexity in the 21st century and within DoD acquisition has spurred a growing amount of discussion on critical thinking. It appears frequently in presentations, articles, and professional journals, but rarely is it fully defined, nor are there any implementing guidelines. Most authors assume the readers share an in-depth and common understanding of the term and how to incorporate critical thinking into their decision making. I couldn't disagree more. In fact, in scholarly literature, fundamental nuances abound. In 1985, Stephen Norris defined critical thinking as "deciding rationally what to or what not to believe" in his book, *Synthesis of Research on Critical Thinking*. In the broadest sense, I agree with his definition. But its simplicity inadvertently produces an obstacle: His characterization embodies traits that most people believe they possess, resulting in the vast majority of people believing that they think critically. I've met precious few acquisition professionals who don't believe they are expert critical thinkers.

In my opinion, many acquisition professionals miss the nuances because critical thinking is much more than Norris' definition. It is a reflective and questioning approach to thinking. According to Richard Paul, Douglas Martin, Ken Adamson, and A.J. Binker in their *Critical Thinking Handbook*, critical thinking is "the art of thinking about your thinking while you are thinking in order to make

your thinking better: More clear, more accurate, or more defensible."

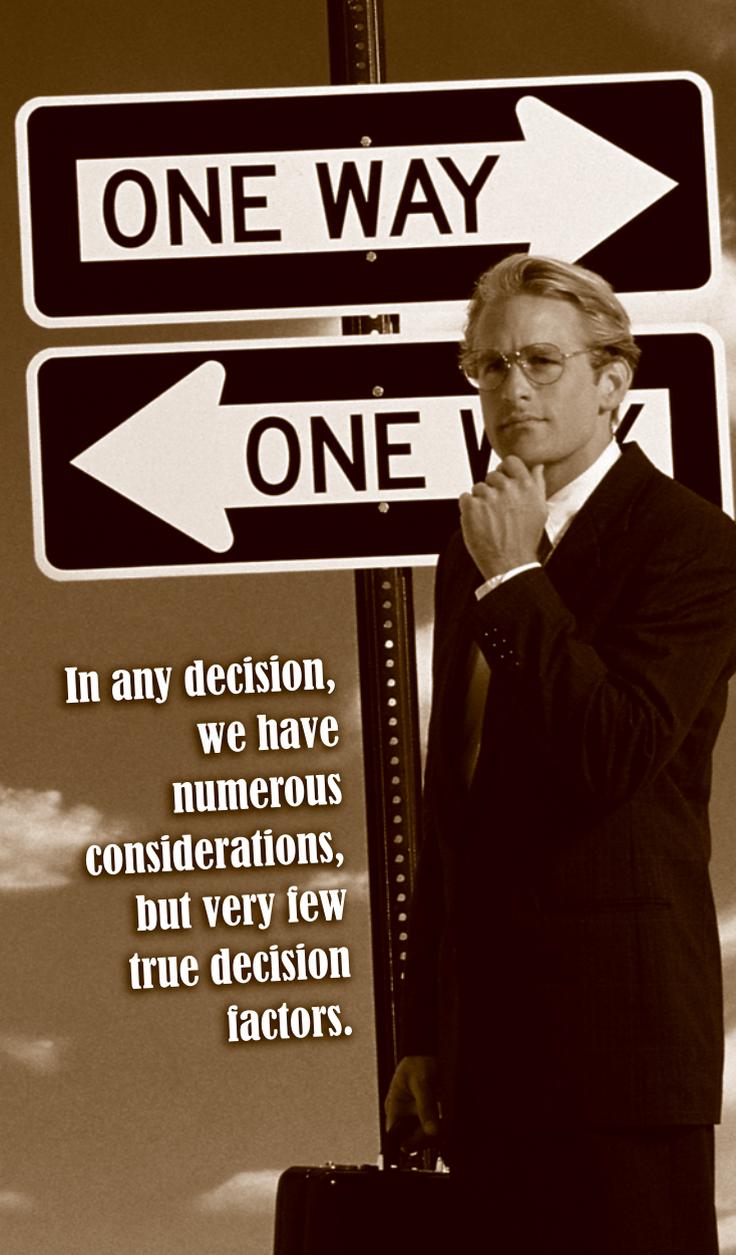
Let us consider the *Critical Thinking Handbook* definition with a little more scrutiny. The wording is clever and illustrative of the concept, but it resonates of being too witty and somewhat obvious. Being a meat and potatoes type of guy, I don't see the meat. Where is the substance? How can you think about your thinking? What questions do you need to ask yourself? What do you need to examine, and is there a validation process? I've found the best way to analyze my own thinking is to review the process I've followed when making a previous decision.

Think about a difficult decision you recently had to make. Once you have that decision in mind, ask yourself this question: What factors did I consider when I made this decision? I'm sure you can document an extensive list of things you considered. Now whittle down the list to the three or four factors that really determined your decision. In any decision, we have numerous considerations, but very few true decision factors. Using your wonderfully clear 20/20 hindsight, list any factors you can think of now that you should have considered, but didn't. You



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have to be honest here. Considering both sets of factors, why did you focus on particular factors and ignore others? Why did you fail to consider factors that you now realize should have been taken into account? Do you see any biases in your thinking or prejudgments that may have subconsciously driven your thinking in a particular direction? If you're like most of us, several of the unconsidered factors were based on assumptions that you treated as solid facts.



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Problems in Making Assumptions

Let me provide an example. Several days ago, I received a voicemail from my son, Brian, asking me to call him. I called, and he didn't answer his phone. A few minutes later, I called my wife, who was out of town on business. During our conversation, I mentioned that Brian had just called. My wife told me, "Oh, Brian wants to pick up Anya from daycare." "Okay," I said. Since I didn't have to pick up Anya, I worked late. At about 6:45, I got a frantic phone call from my wife, "The daycare center just called. Where are you? You had to pick-up Anya by 6:30." I was shocked because I believed Brian was picking up Anya. Based on the earlier conversation with my wife, in my mind, I turned an assumption into a fact. I was positive that Brian had picked up Anya. Gaining an understanding of why you treated certain assumptions as facts will provide insight into your biases which are an integral part of the "thinking about your thinking" process. What bias caused this problem? Because my wife normally arranges

for Anya's pick-up, without thinking, I accepted her statement as an affirmation that Brian was getting Anya rather than just passing along Brian's request.

In thinking about your assumptions, were there any assumptions that were just plain wrong? Why were they wrong? Your analysis could uncover a number of possibilities. Perhaps you didn't fully understand the situation or environment, or you had incorrect information or data. Perhaps you didn't think the information was important enough to consider? Did your biases or predispositions play a part in making the wrong assumption(s)? Did you attempt to confirm those assumptions, or did you fall into the trap of treating assumptions as if they were facts? Invalid assumptions can be devastating to a program, especially if your decision would have changed if you made the opposite assumption. I call these critical assumptions. In improving your thinking by making it more critical, it is important to be cognizant of your inclinations and proactively regulate their influence. Recognizing assumptions for what they are, analyzing the criticality of them, and then seeking to validate those that are critical to the success or failure of the actions stemming from your decision are very powerful thinking tools.

Eliminate Biases

Another question to ask yourself is "Was I wearing blinders?" This question is similar to those related to biases, but sufficiently different enough to warrant a separate consideration. Here, we want to think about other viewpoints of the situation that we may have overlooked or were unaware. Ask yourself, "Did I capture and weigh the positive and negative impacts to other people or departments?" It is not uncommon in the aftermath of a decision to discover unconsidered adverse consequences. Uncovering how and why they were overlooked can provide insight regarding your predispositions and reveal more about your thinking process. As Alan Kay, one of the inventors of the Smalltalk programming language and one of the fathers of the idea of object-oriented programming, said, "Perspective is worth 80 IQ points."

There are other questions to ask yourself in order to refine and strengthen your thinking process. Questioning yourself boosts your personal insight into your biases, prejudices, and blind spots—and all are factors that inhibit critical thinking. My personal definition of critical thinking is "questioning, analyzing, and considering all aspects bearing on a situation, including facts, assumptions, biases, reasoning, perceptions, inferences, and ways of thinking." In questioning your reasoning process, critical thinking more objectively delineates how and what you take into account when analyzing your thinking.

Critical Thinking in Acquisition

If we now turn our attention back to the place of critical thinking in the acquisition process, we can recall that I

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noted earlier that the defense acquisition process is complex, requiring the decision maker to balance a multitude of factors in a dynamic environment. Critical thinking in acquisition is a multiple-step process that considers multiple factors and viewpoints. It requires several diverse skills, such as creativity; analysis and decision making; and the incorporation of strategic, tactical, resource, and political considerations. Prioritization of goals, objectives, decision factors, and stakeholder concerns is an integral part of the process, along with allowing for unintended consequences.

Creativity is tied to divergence and out-of-the-box thinking and is an integral part of the problem-solving, decision-making, and critical-thinking processes. When attempting to understand a situation or problem set, people typically consider only viewpoints within their normal sphere of experiences or expectations. That creates a “been there and done that” attitude, stymies critical thinking, and may result in solving a non-existent problem while ignoring the real problem. Don’t fall into this trap. Creative thinking asks several questions regarding what assumptions have been made and how they may influence the decision.

Creativity can pay rich dividends when determining and balancing decision factors and considerations. Earlier, I mentioned that most people consider many factors when making a decision, but only think about the consequences of two to four factors when making a decision. Too often, people instinctively believe that these few factors carry the most weight, but the factors that are most critical

should not be identified instinctively. Rather, they should be consciously considered and analyzed, and then chosen carefully with full prudence. A deliberate approach is warranted and so you should ask yourself, “How did I determine the factors in my last decision? Was it happenstance or thoughtful? Was it business as usual or genuine analysis?” As Albert Einstein is reputed to have said, insanity is “doing the same thing over and over and expecting different results.”

These are challenging times, and they require innovative decisions and approaches. The only way to uncover imaginative approaches is to modify our thought processes by reflecting and understanding our thinking. I’ve addressed several fundamental aspects of critical thinking, and there are many more, including intellectual neutrality, logical progression, and consequence correlation. But the principal aim here is to persuade the reader that all of us are capable of engaging in critical thinking and that getting started in the process can be easier than you may have thought. The more you understand why you think as you do and make a conscious effort to remove bias and predisposition, the better decisions you will make. Difficult times require innovative thinking and sound decisions, and those require critical thinking.

The author welcomes comments and questions and can be contacted at john.f.horn@lmco.com.