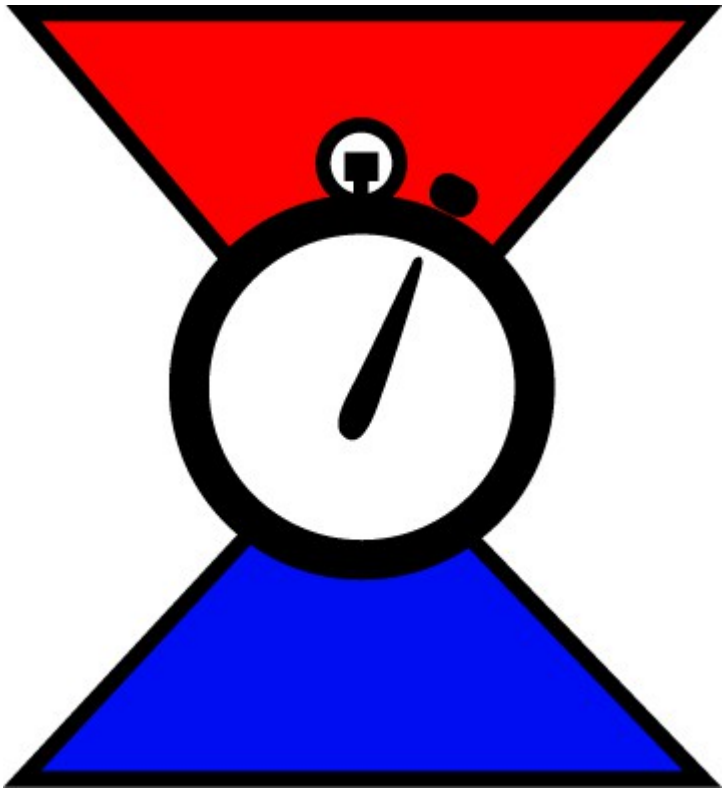
Critical Thinking

Essentials



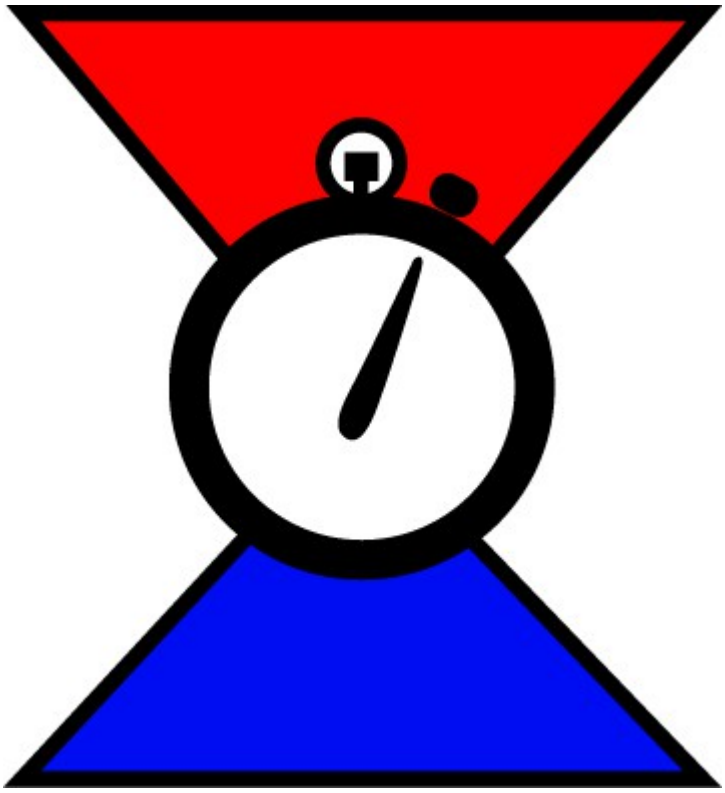
Template & Mobile APP

Captain Kevin M Smith

Author of the **“Commitment to Reason”** series

Critical Thinking:

An Idea Who's Time Has Come



WEB Site: commitmenttoreason.com

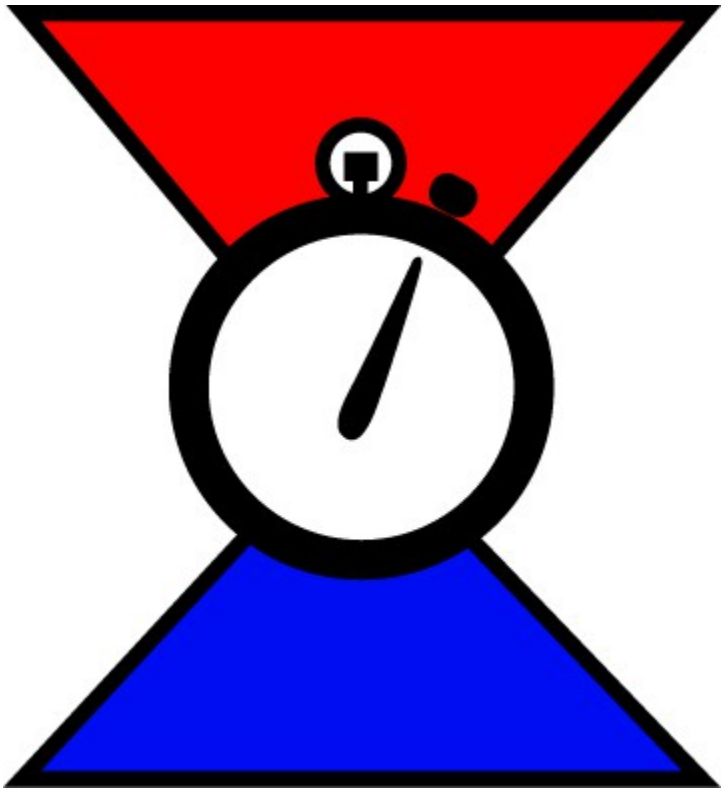
Template
&
Mobile APP

This Template & Mobile APP is a companion to the *Commitment to Reason* book series. Published by Tate Publishing and Enterprises, LLC.

Commitment to Reason **family of products:**

Books—eBooks—Mobile APP —Handbooks--Tutorials--Pod Casts—Newsletters--Lecture Series

Welcome
To The World of
Critical Thinking



Prepare to be amazed.

Clarify. Reason. Win.

Clarify the Actual. Employ Reason.
Gain Winning Performance

Fundamental Argument For Critical Thinking

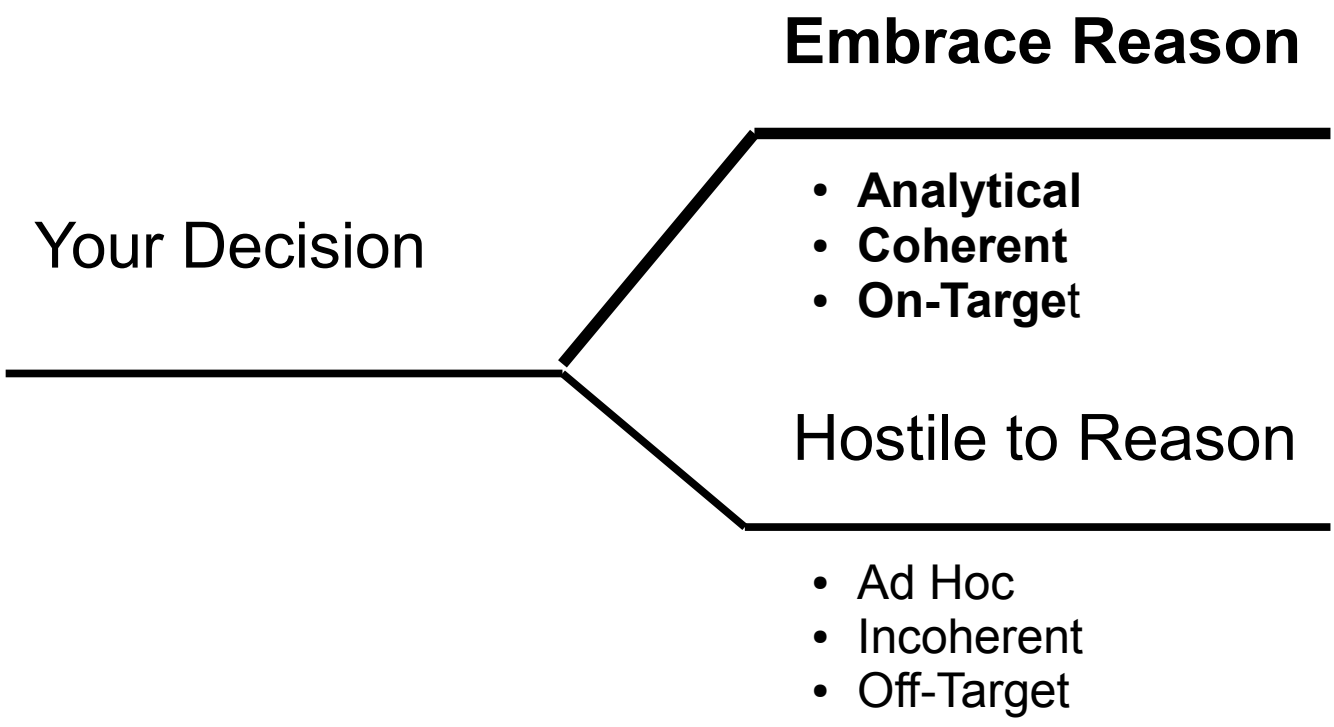
*In life what is most important is not <u>what</u> you think, but **<u>how</u>** you think.*

Critical Thinking is Key.

Before you begin to think, stop and ask yourself: “How *Should* I Think About This”.

Life's Most Important Decision

Either **Embrace Reason**
Or
Do that which is **Hostile to Reason**



Employ Critical Thinking

A Useful Definition Of Critical Thinking

Critical Thinking is used to correct the most common and persistent problems associated with errors of judgment and choice. Evidence has shown that these errors are often committed by amateurs and experts alike.

Importantly, critical thinking is a defined conceptual construct and set of cognitive performance aids of proven value that when activated sharpens observations, clarifies the actual, improves problem solving, and optimizes success.

Critical thinking is a skill that can be learned, lends itself to practice, and when used with intent, can achieve amazing results.

A growing body of evidence profoundly suggests that critical thinking is needed now more that ever due to our diminishing ability as individuals and as a nation to solve problems effectively and efficiently.

Critical Thinking Concepts

Preparing to Build the Critical Thinking Model

How information processing occurs in a critical thinking algorithm.

1. Information is received about some aspect of reality. The state of the world, your environment, your business, operation or mission.

2. This information is determined to be either important or not important.

3. Further considerations are made concerning level of significance and urgency generated by this revealed information.

4. The problem, challenge or issue is then clearly specified. This is done without any reference to a possible solution.

5. A range of solution options (alternatives) are specified that may prove effective in dealing with the problem, challenge or issue.

6. Decision Point. The best option (alternative) is selected based upon some selection criteria.

7. Execute. The decision is carried out to achieve success.

8. Measure. Ongoing performance is measured and corrections are made if necessary.

Presenting

The Critical Thinking Model

Critical Thinking Model

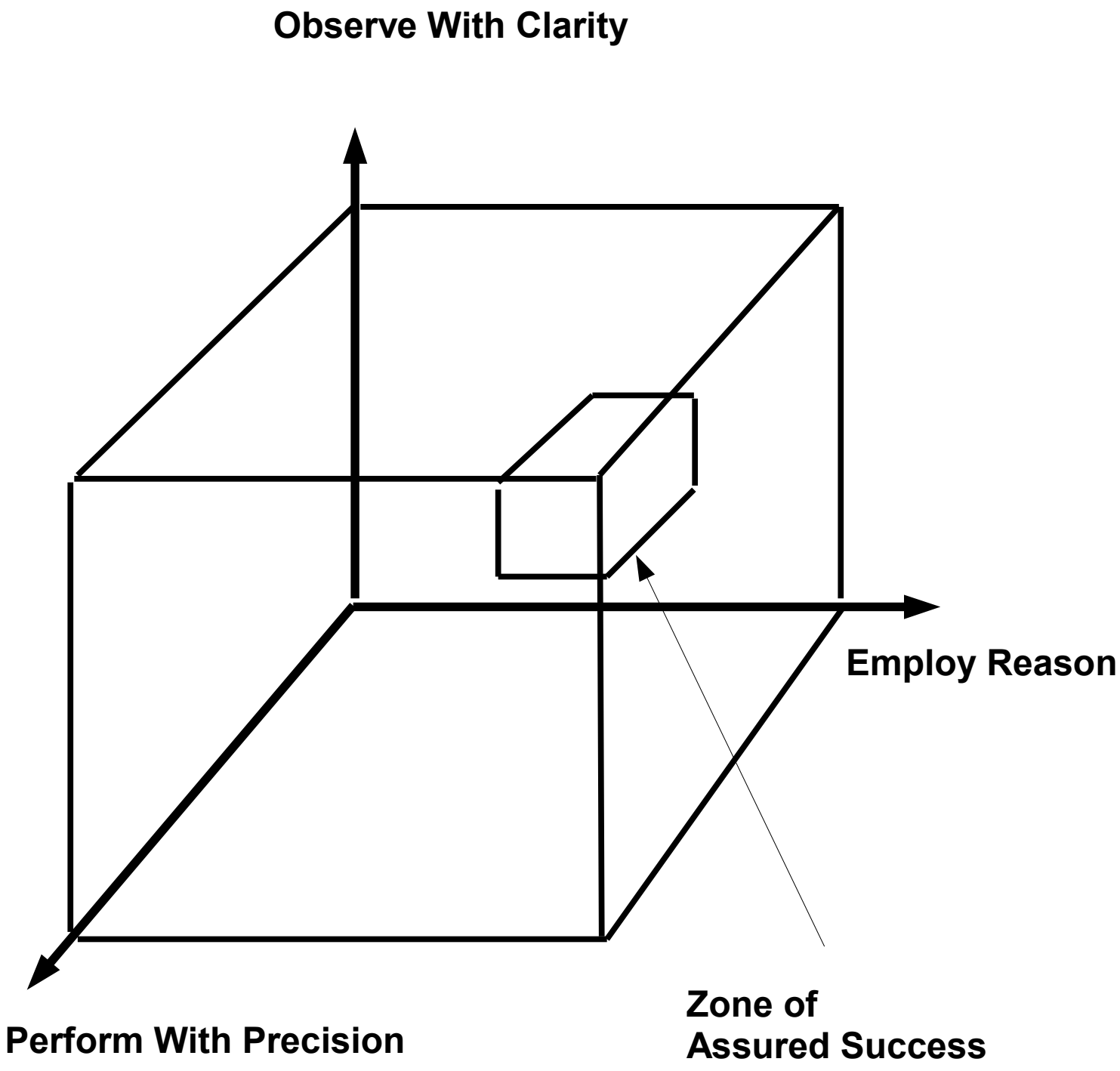
Observe With Clarity. Observe the world and one's immediate surroundings objectively. Reality is an objective fact. Extreme care must be taken to avoid observing with the goal of supporting one's most cherished belief. One must be consistent in **Clarifying the Actual**.

Employ Reason. The critical thinker uses the power of reason to determine a specific course of action necessary to achieve success. Employ reason also means to be analytical: use an analytical process to address all significant challenges. Avoid that which is ad hoc. **Employ Analytical Reasoning.**

Perform Well. Do what is necessary and do it well. Always do your best. This involves taking action, and directing others, if needed, to achieve winning performance. The goal is always Mission Success, not personal glory. **Perform With Precision.**

Clarify the Actual	Employ Analytical Reasoning	Perform With Precision

Graphic Depiction of the Critical Thinking Model



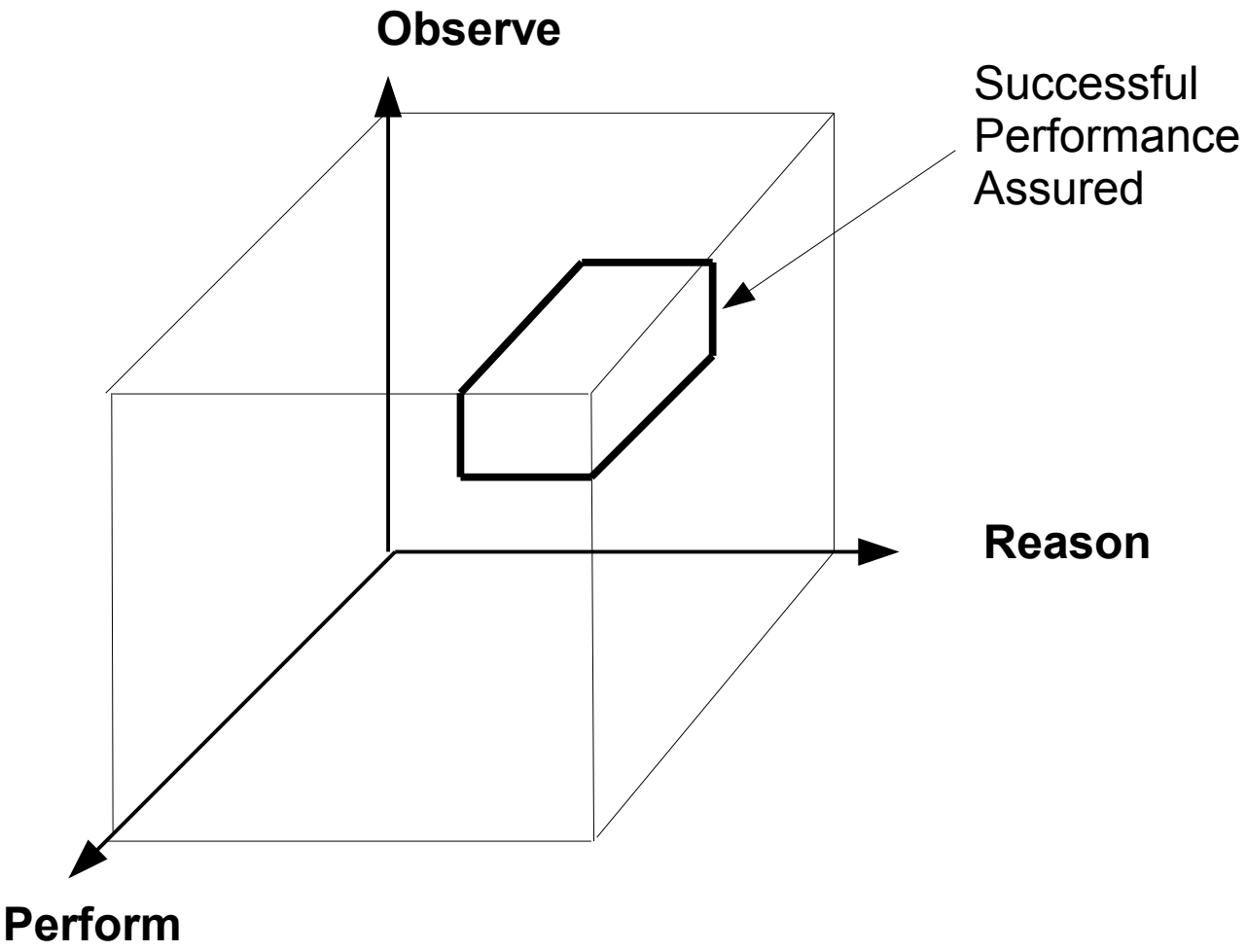
Graphic depiction of the three main components of Critical Thinking and the area where success can be assured. Outside of this area success is less likely.

Critical Thinking Model

Expanded Version

Critical Thinking Essential	Element	Discussion
Observe	Situate	Situate oneself to enhance data reception
	Detect	Detect signals that may be significant
	Orient	Orient events to optimize clarity
Reason	Analyze	Analyze & Generate Alternatives
	Evaluate	Evaluate each alternative for Utility
	Decide	Decide on best alternative to achieve mission success
Perform	Execute	Execute chosen alternative
	Measure	Measure on-going performance
	Optimize	Apply necessary course corrections

Critical Thinking Template And Mobile App



Additional helpful material concerning the meaningful application of critical thinking.

Critical Thinking Model Template & Mobile App

		Clarify	Reason	Win
		Clarify the Actual	Employ Analytical Reasoning	Perform With Precision & Win
Observe With Accuracy & Clarify the Actual	**Situate**	XX		
	Detect	XX		
	Orient	XX		
Employ Analytical Reasoning	**Analyze**		XX	
	Evaluate		XX	
	Decide		XX	
Perform With Precision & Win	**Execute**			XX
	Measure			XX
	Optimize			XX

Clarify the Actual….Employ Reason…Perform With Precision (Win)

Critical Thinking Template & Mobile APP

What follows is a discussion of the critical thinking template. In more modern terms, we can think of such a template as being represented as an APP. The home page of such an APP is shown above. This representation contains the Motto and a more detailed description of the critical thinking three step process along the top. Along the left side, the breakout of the three step process into the nine sub groupings is presented.

The idea is to select one of the nine sub-groupings in descending order as one goes about employing the critical thinking model.

When a sub-group is selected, a corresponding page will be displayed. All such pages are presented in this section. For example, when the Critical thinking category “Orient” is selected on the APP, the corresponding page is displayed such that this aspect of critical thinking is fully explained.

OBSERVE

Observe With Clarity

Situate Detect Orient

Situate: Situate oneself to be able to detect incoming information

.

- Find a favorable position or location.
- Activate all sensors including “intuition”.
- Establish proper mindset.

Comment: Often our mindset is such that important signals are not understood, or worse, may not have been detected.

OBSERVE

Situate **Detect** Orient

Detect: Detect incoming signals and determine what needs attention.

- Focus on signals that may prove significant.
- Locate source of signal. (Very important)
- Select out signals that rise to event status for further examination.
- Reorient focus from data to events.

Comment: Avoid those signals that are distractions. An event is something that needs the operator or manager's attention. Think in terms of events.

OBSERVE

Situate Detect **Orient**

Orient: Orient the event or event set in order to clarify the actual. Use clarification tools to help.

- Orient the event on the risk continuum to determine its risk producing properties.
- Orient the event within the operational environment in which it legitimately resides. Be sure to select the right playing field.
- Orient the event set on the event horizon to further clarify the actual. Do not confuse events with data. A data point lacks meaning beyond itself. An event or event set contains meaning beyond itself. This meaning will almost always contain a perception of risk. It is often useful to think of oneself as a “Risk Manager”.

Problem Definition
&
Challenge Statement

Problem Definition: What is the problem for which one is seeking a solution. (Avoid any reference to a possible solution). Also avoid confusing the problem with “symptoms”.

Challenge Statement: What challenges will be faced on the journey to find and implement a solution. It is important to acknowledge systems laws, operational constraints, and best practices.

Remember complex systems behave counter-intuitively: That is the plausible tends to be wrong.

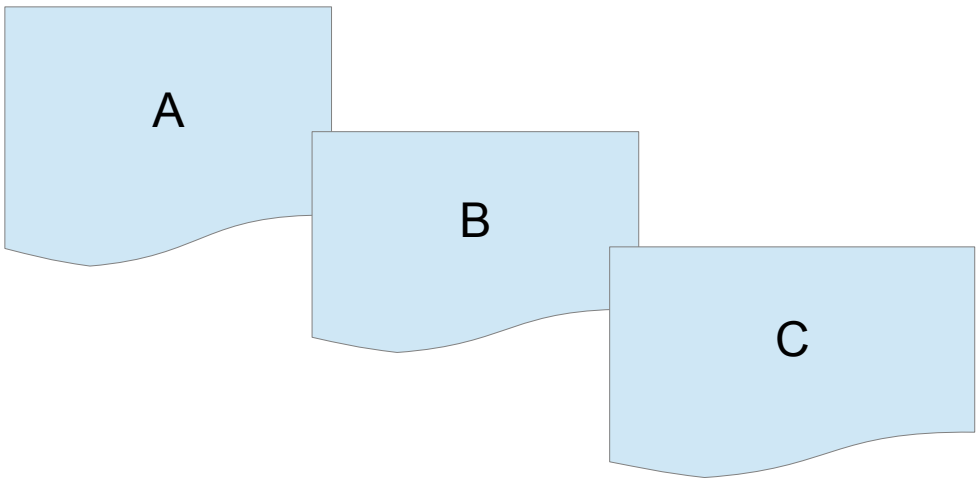
--J. W. Forrester

REASON

Analyze Evaluate Decide

Analyze: Utilize analytical reasoning whenever the situation warrants it. Use empirical reasoning for less important matters.

- Generate solution options, often called alternatives using an "Alternative Generator" designed for this purpose. **
- Look for creative solutions to the stated problem and challenge.
- List all candidate alternatives.



** A particularly useful alternative generator has been presented elsewhere.

REASON

Analyze **Evaluate** Decide

Evaluate: Evaluate each alternative against a set of criteria based on the concept of how effective it will likely be in addressing the problem.

- Determine the intrinsic value of each alternative.
- Determine the probability that this alternative can be applied to the aforementioned problem
- Multiply each value times the probability.
- Specify the Utility of each.
- Utility = Value x Probability

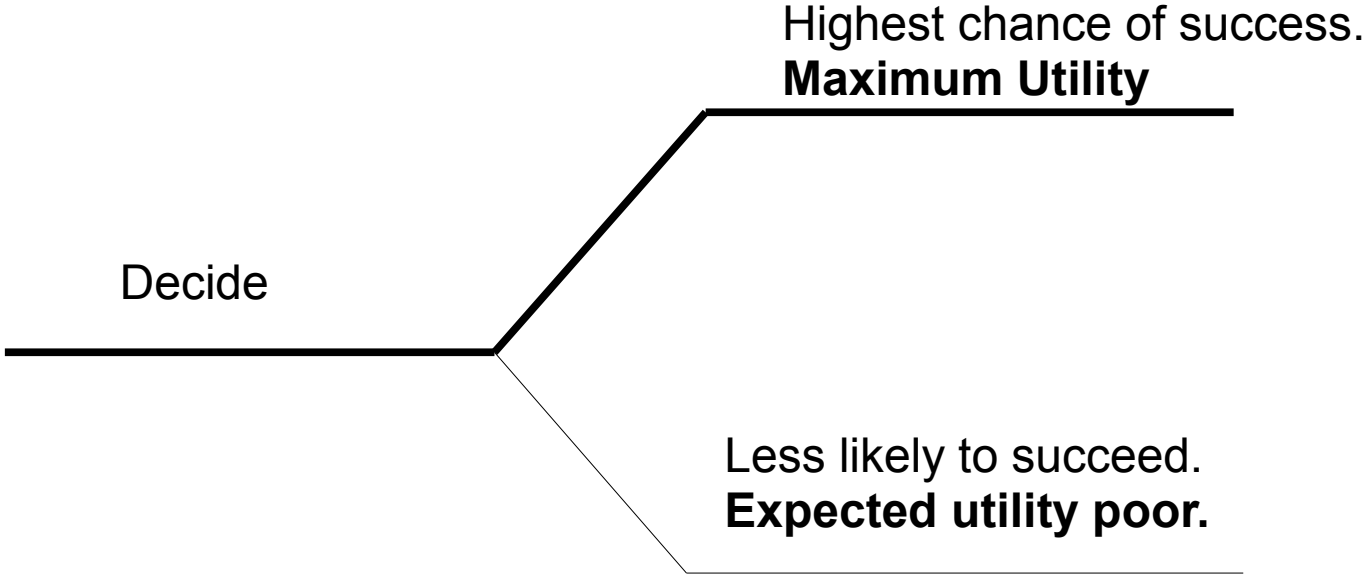
REASON

Analyze Evaluate **Decide**

Decide: Decide the best course of action, given that one has clearly understood the problem.

- Select the best option (alternative) from a list of all possible options. Maximize utility.
- Consider non-traditional solutions.
- Subject each alternative to a test of reasonableness.

Comment; The Reasonable Man Theory is a good way to think about your selection.



PERFORM

Execute Measure Optimize

Execute: Execute the best option (alternative). This is your choice because it will most effectively deal with the problem at hand.

- In selecting the best alternative, make sure that this option is clearly understood by all players.
- Be prepared to be wrong.
- Stay objective.
- Specify the needed steps in a particular performance package.
- Provide this performance package to all players

Decisive action is often necessary, so execution should not be unnecessarily delayed. Do not allow the problem to fester..

PERFORM

Execute **Measure** Optimize

Measure: Install performance measures to determine “How-Goes-It”.

- Measure performance that will bring credit on your professional skills.
- Ensure performance measures are meaningful.
- Disregard vanity measures.

Comment: Performance measures are often neglected, especially in large complex programs or government run initiatives. It is almost as if many of us do not like “bad news”.

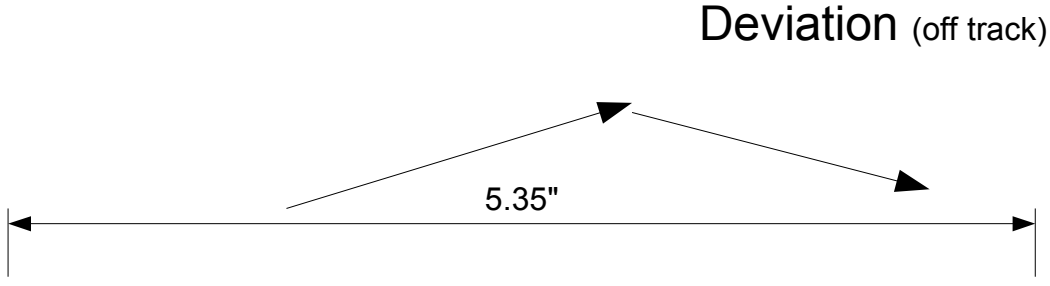
PERFORM

Execute Measure **Optimize**

Optimize: Optimize performance of the on-going operation by applying timely corrective action to any deviations or deficiencies.

- Ensure resource management is being appropriately applied.
- Clearly identify when the operation has gone off-track.
- Quickly recover from all off-track conditions.

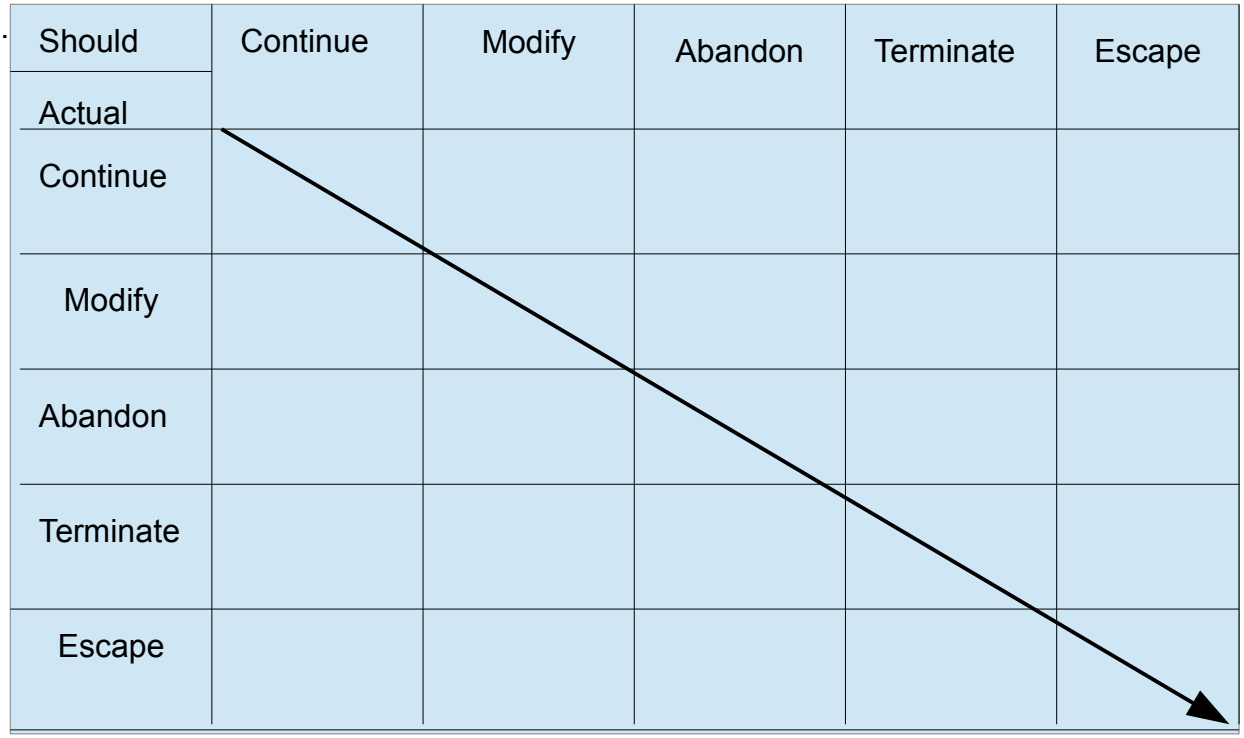
Comment: Detect deviations early and make small corrections. Do not wait until deviations become large.



PERFORM

Execute Measure **Optimize**

Represented here is a useful performance tool to assist in optimizing performance. This tool is most useful in dealing with difficult or critical problems associated with large scale systems. It also assumes that an action plan has been developed and implemented. It is based on a symmetrical matrix depicting “Actual vs. Should”. As the plan progresses and activities are preformed, certain situations or events will likely be encountered. These events may prove to be “mission critical” and thus a re-evaluation of the mission plan will be necessary. The level of criticality should necessarily encourage the type of action needed.

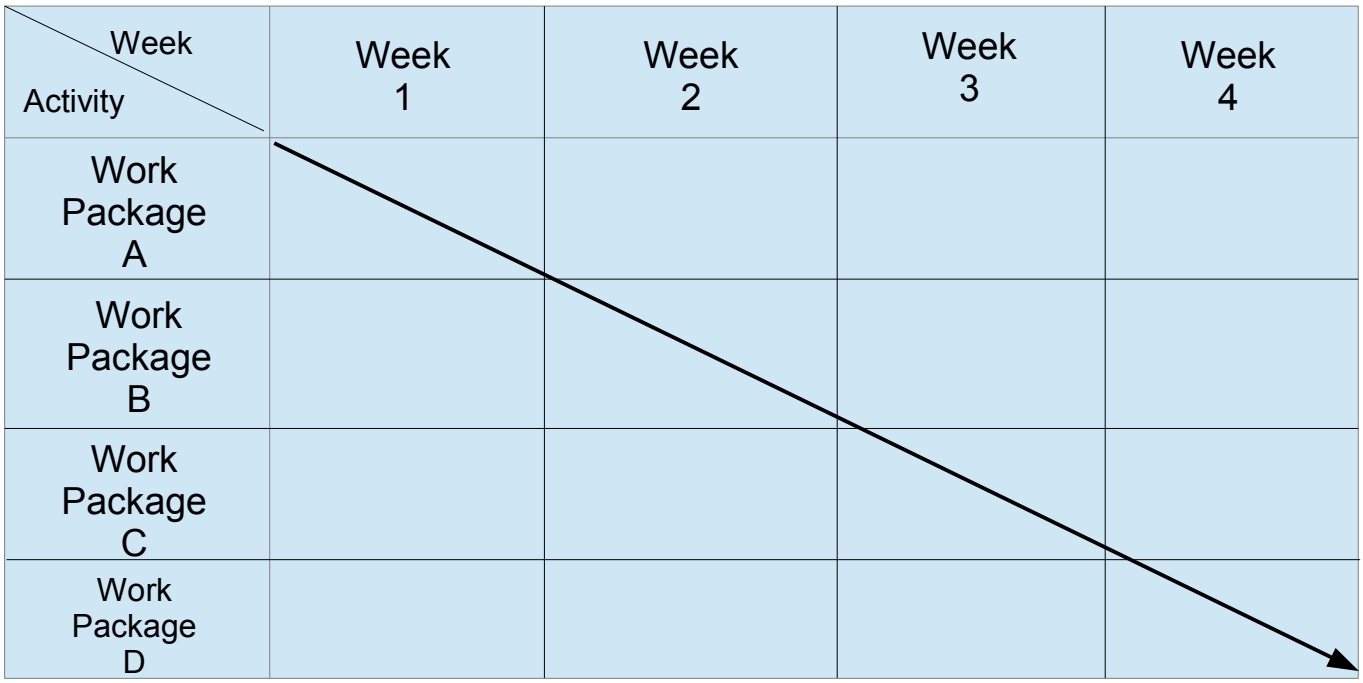


Also notice that the arrow or trajectory with respect to the appropriate response package depicts whether the situation is on track leading to success, or off track leading to failure.

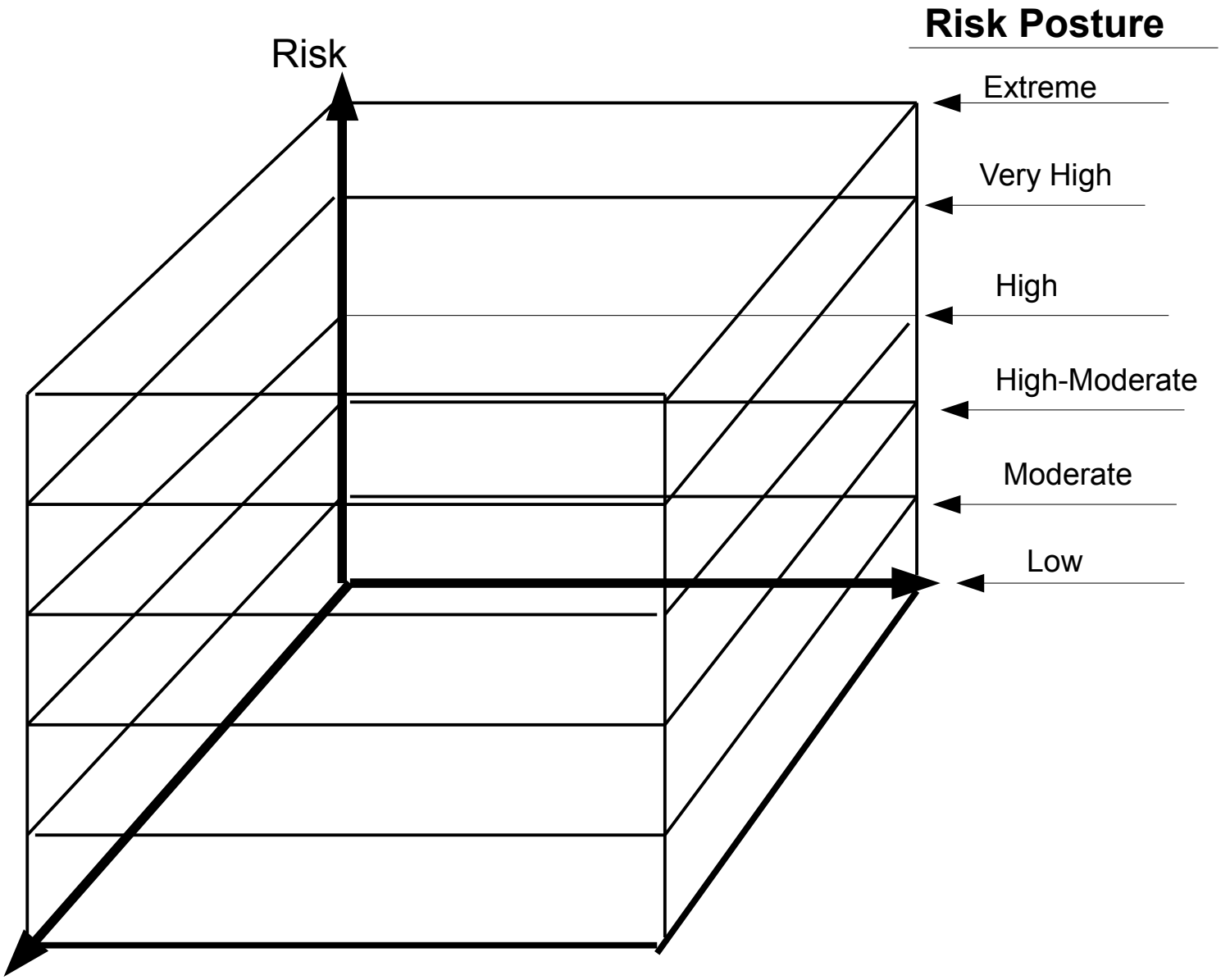
Perform

Execute Measure **Optimize**

A useful program management tool is presented here. This tool uses weekly segments as the major time criteria. Each work package is constructed to contain a weeks worth of work that is considered necessary to arrive at the end objective in the allotted time. So for example, week one should see the completion of work package A, work package B should see its completion in week two and so forth. Up to week four, the arrow shows that the project or operation (or mission) is on track.



Playing Field
Additional Discussion on the Frame of Reference



Note: Select the optimum playing field based upon the current or expected risk posture for all recognizable problems. Do not downplay or ignore risk. Also, do not operate on a playing field that does not correspond to the actual risk encountered.

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Caution: Do not apply the *right* solution to the *wrong* problem.

Playing Field Discussion

The fact that a particular problem or challenge needs to go through an orientation phase first, before entering the solution phase, is an important aspect of applied critical thinking. Conceptualizing the problem with respect to the appropriate playing field is an important step on the way to formulating an optimum solution. Different playing fields are used for different types of problems. These can be organized around levels of risk or particular danger zone categories.

These danger zones are:1) Extreme; 2) Very High; 3) High;
4) High-Moderate; 5) Moderate; and 6) Low.

Experience has shown that in a large number of cases, such as a business failure, major accident, defeat on the battle field, or failed government program, one can trace this failure to its root cause: an attempt to apply the “right' solution to the wrong problem. By “right” solution we mean the solution most favored by many including most of the so called experts. By wrong problem, we mean that a clear understanding of the problem was lacking because, in part, the appropriate “Playing Field” was not used. Instead, a default playing field was used which tended to support the favored solution. This of course almost always leads to failure.

Caution: Do not attempt to formulate a solution to a problem while operating from the wrong playing field (plane of reference). This will inevitably lead to failure. The risk associated with a recognizable operational problem is often understated, thus resulting in the formulation of a moderate risk solution in response to increasingly dangerous, high risk situation. This is the greatest single cause of most performance failures, and is a lesson learned time and again when studying airline accidents.

Playing Field Discussion (continued)

Caution: Do not attempt a solution operating from the wrong playing field.

Assumption: A plan is being executed, an operation is being performed, or a mission is being conducted.

Low risk playing field. Risk is low, operation is routine and so continue with current plan.

Moderate risk playing field. Operational risk has risen to moderate, therefore modify the operation to accommodate the moderate risk profile.

Danger: High risk playing field. Abandon the current operation. Some delay is acceptable to formulate alternative plan.

Danger: Very high risk playing field. Terminate the operation without undue delay. Conditions no longer safe.

Danger: Extreme risk playing field. Execute escape without delay. Conditions extreme.

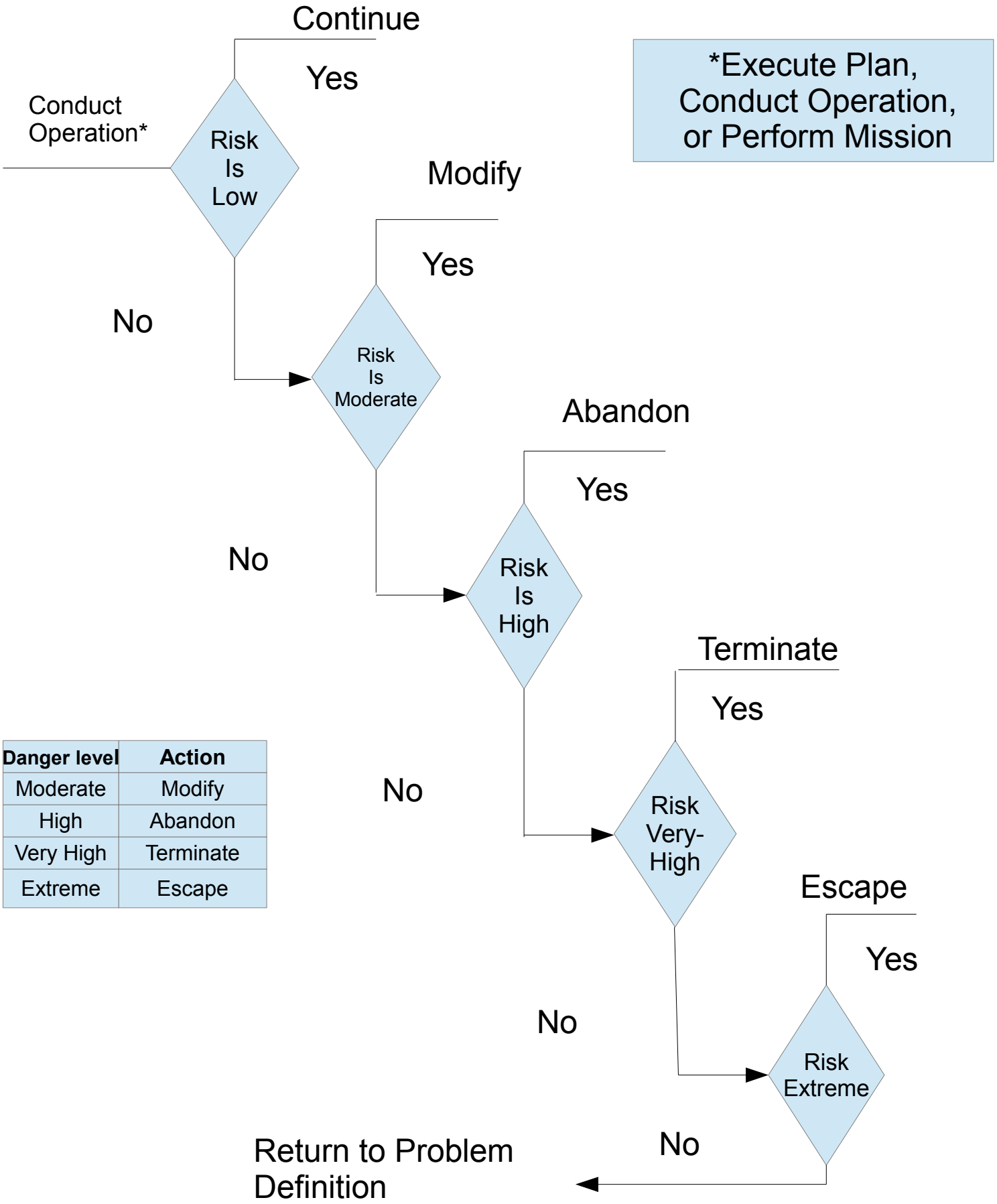
The Operational Decision Algorithm

On the next page we have represented the Operational Decision Algorithm. This decision algorithm directly relates to the previous playing field discussion, and is presented for those who desire more information of a decision processing nature. Knowledge of how operational decisions are performed is most useful for those conducting complex, high risk endeavors such as air & space operations, surface ship and submarine operations, various military operations, mountain climbing, and so forth.

Notice that the risk posture is the same as previously addressed in the playing field discussion. Thus for each level of danger, there is a corresponding frame of reference (playing field) as well as a corresponding decision analytical structure. These two aspects of critical thinking form an essential interaction that supports optimum decision processing, ensuring success.

Operational Decision Making

ODM



Danger level	Action
Moderate	Modify
High	Abandon
Very High	Terminate
Extreme	Escape

Discussion of ODM

The following provides some additional discussion concerning the Operational Decision Algorithm on the previous page.

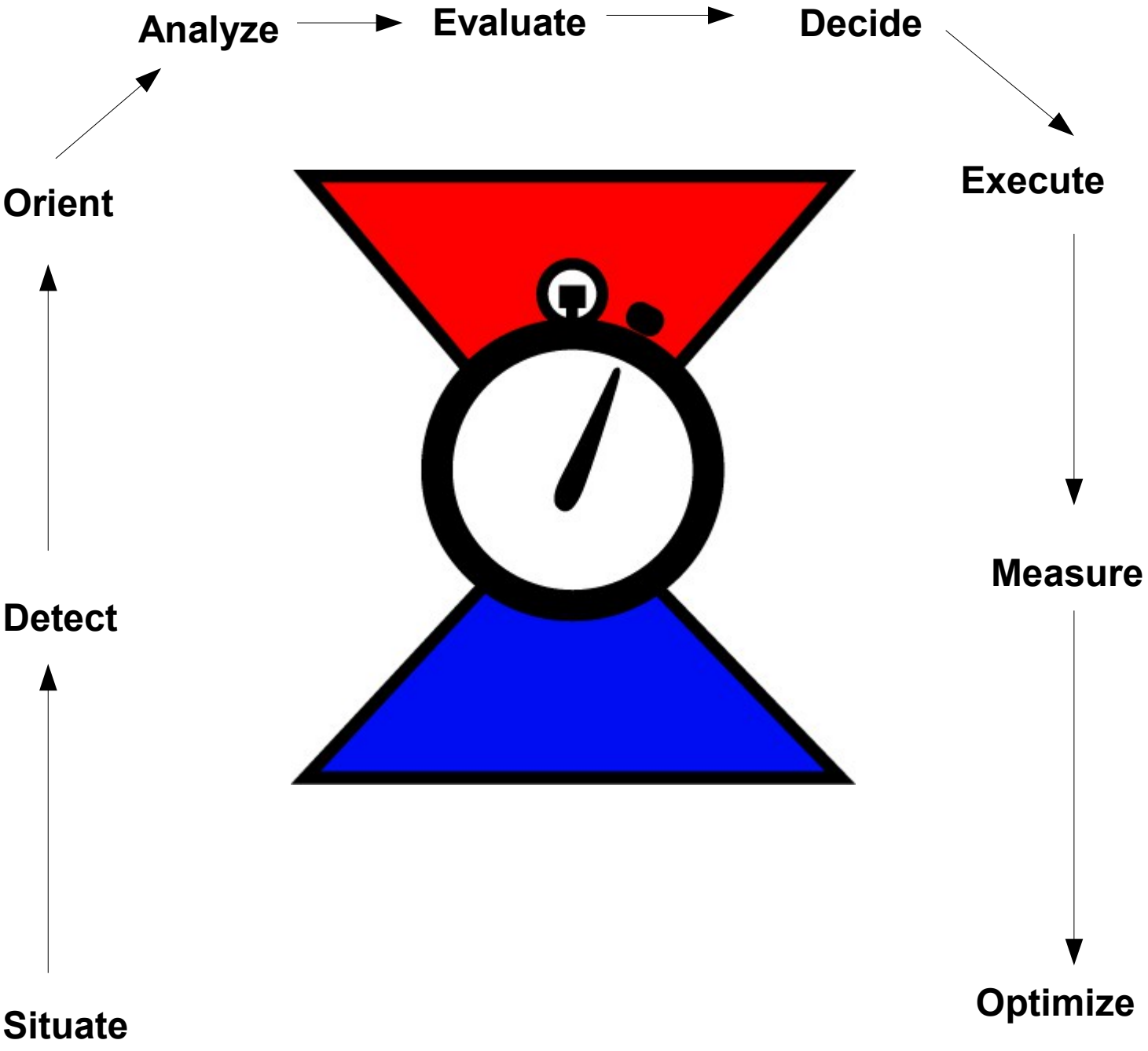
Moderate risk conditions: This is where the situation reflects a rising risk profile with respect to the operation. Risk could emanate from any number of sources and thus the operation will be impacted. For moderate risk conditions, a modification to the operation or mission plan is necessary to prevent the risk from becoming excessive.

High risk conditions: This is where an encountered event has brought into the operation a dangerous situation. The danger may be not only to the operation but to the organization as well. In this case the current operation must be abandoned, and an alternate operation implemented. Some delay in alternative plan implementation is acceptable. The alternative plan should have already been developed. Most operations fail because of the unrealistic belief that an alternate course of action will not be necessary.

Very high risk conditions. The danger level in this case has been and continues to increase. The encountered event represents unexpected danger, and thus decisive action is essential. Therefore to prevent catastrophe, the operation or mission must be terminated. This must be done without delay.

Extreme risk conditions. Extreme danger, most likely brought about by a number of unexpected events, relates to impending catastrophe. In this case the operation must immediately cease and an escape executed. In the ocean this would almost certainly involve deploying the lifeboats. In aviation this is well understood as requiring the execution of a specified escape maneuver.

Part V
Summery



Helpful Hints

- Critical Thinking: an idea whose time has come. This is because as individuals and as a nation we must improve our problem solving abilities.

- Critical Thinking Moto: Clarify-Reason-Win. Clarify the actual. Employ Reason. Gain winning performance.

- In life, what is most important is not ***what*** you think but ***how*** you think. Critical Thinking is key.

- Our most important decision: Either we **embrace reason** or do that which is **hostile to reason**.

- Critical thinking can be learned, lends itself to practice, and when used with intent will produce amazing results.

- Airline Captains, Chess Masters, Military Commanders, Military Pilots, Top Gun Instructors,top managers, all attest to the power of critical thinking.

- When dealing with complexity, such as large scale systems, remember that these systems will behave counter-intuitively: Than is the plausible tends to be wrong.

- All systems, whether natural or human created, must be designed consistent with the first and second laws of energy. Otherwise they will not work because they cannot work.

- The single greatest cause of catastrophic events such as airline disasters, battle field losses, business failures, etc. is the well intentioned but disastrous attempt to apply the *right* solution to the <u>wrong</u> problem.

Commitment to Reason

Book Series

The Commitment to Reason book series is about critical thinking, or more specifically about applied critical thinking. This initiative includes books, handbooks, pod casts, instructional videos, and newsletters. All of this is intended to make critical thinking more accessible to more people.

Commitment to Reason is based on the premise that what is important is not *what* you think but how you think. How to think well then is our goal. This is where ***critical thinking essentials*** comes to the rescue.

First and foremost, critical thinking encourages us to face a fundamental choice: Either we **embrace reason** or do that which is **hostile to reason**.

In this series we explore not only how to embrace reason in all of its useful formulations, but also what have we have done (as a nation) that is indeed hostile to reason. The equation is simple. If it is hostile to reason, it will not work because it cannot work.

We look at certain things that are hostile to reason so as to bring some urgency to the issue of whether we need to individually, and as a member of an organization, improve our critical thinking skills.

Commitment to Reason
Book Series

Book One: **Hostile to Reason I.** This book introduces the reader to Critical Thinking and using some of it's principles, critically examines certain aspects of our culture that are based upon ideas and concepts that are hostile to reason. A number of new ideas are presented.

Book Two: **Hostile to Reason II.** This book covers additional material on critical thinking and continues the theme that certain aspects of our culture are based on that which is hostile to reason. Together book one and two outlines the urgent need to improve our judgment and problem solving abilities.

Book Three: **Commit to Reason I.** This book is a practical application of Critical Thinking Essentials for everyday applications. It puts forth the proposition that critical thinking is accessible to almost everyone, is a skill that can be taught, lends itself to practice, and when used with intent will produce amazing results .A companion handbook is also available. (See below)

Book Four: **Commit to Reason II:** This book presents a more in-depth discussion of Critical Thinking Essentials and is most useful to professionals in high stress occupations. Important non-linear problem solving strategies are covered, along with a number of real world examples.

Critical Thinking Handbook: A **Critical Thinking Essentials *Quick Reference Handbook*** is also available.

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