The Five Habits of the Master Thinker

GEOINT 15
Kathy Pherson
23 June 2015
Agenda

- Four Key Cognitive Concepts
- Critical Thinking Applied to Our Problems
- Analytic Argumentation
- Five Habits of Master Thinkers
- Structured Analytic Techniques for Applying the Habits to Intelligence Problems
The Call for Analytic Rigor

- 9/11 Attack on World Trade Center
  - Failure of imagination
- Iraq WMD
  - Poor analytic tradecraft
    - Missing null hypothesis
    - Inadequate vetting of sources

These developments accelerated the move to more structured analysis and standards, but were not the initial impetus!
Four Cognitive Concepts to Keep in Mind

1. Greg Treverton

Is our problem a **puzzle** or a **mystery**?

2. Gary Klein: Sensemaking

Our brains automatically fit data into a frame and fit the frame around the data.

3. Kahneman: Thinking Fast and Slow

System 1: Intuitive
System 2: Purposeful

4. Heuer: Impact of Cognitive Bias on Intelligence Analysis

- If we do not have a category for something, we usually ignore it.
- We discount facts that do not support our analysis.
- We overstate conclusions when a little data is consistent.
- We do not change our analysis despite mounting contradictions.
- We assume the present is like the past.

The Analyst’s Role in the Operating Environment


Jerry Ratcliffe has produced a similar model that explains the components of the law enforcement model for Intelligence-Led Policing.
Critical Thinking Is Defined in Many Ways

- Mental activity that is clear, precise, and purposeful.
- An ability to evaluate information and opinions in a systematic, purposeful, and efficient manner.
- The adaptation of the processes and values of scientific inquiry to my environment and its special circumstances.

Components of Critical Thinking

- Issues & Customer Identification
- Framing & Argumentation
- Source Credibility
- Logic
- Gaps & Assumptions
- Data & Evidence

Components of Critical Thinking:
- Synthesis
- Analysis
How Do These Models Relate?

Critical Thinking Components

Analytic Operational Environment

The Analyst’s Role in the Operating Environment

Data & Evidence

Analyst

Interprets

Logic & Argument

Informs

Issue & Customer

Issue

Impacts

Decisionmaker

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The Real World has Multiple Layers of Decision Makers

# Types of Analytic Techniques

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<thead>
<tr>
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<th>Known Data</th>
<th>Unknown Data</th>
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<tbody>
<tr>
<td><strong>Qualitative</strong></td>
<td><strong>Critical Thinking</strong></td>
<td><strong>Structured Analysis</strong></td>
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<td><em>(Getting Started, Vetting Information, Making the Case, Conveying the Message)</em></td>
<td><em>(Diagnostic, Imaginative, Challenge, and Reframing Techniques)</em></td>
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<td><strong>Quantitative</strong></td>
<td><strong>Empirical Analysis</strong></td>
<td><strong>Quasi-Quantitative Analysis</strong></td>
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<td><em>(Data-based Computer Tools &amp; Visualization Techniques)</em></td>
<td><em>(Computer-based Tools Requiring Input from Experts)</em></td>
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Intelligence Community Directive 203: Standards for Intelligence Analysis

1. Objectivity
2. Independent of Political Considerations
3. Timeliness
4. Based on All Available Sources of Intelligence
5. Exhibits Proper Standards of Analytic Tradecraft, Specifically:
   - Properly describes quality and reliability of underlying sources
   - Properly caveats and expresses uncertainties or confidence in analytic judgments
   - Properly distinguishes between underlying intelligence and analysts’ assumptions and judgments
   - Incorporates alternative analysis where appropriate
   - Demonstrates relevance to U.S. national security
   - Uses logical argumentation
   - Exhibits consistency of analysis over time, or highlights changes and explains rationale
   - Makes accurate judgments and assessments
The Critical Thinking Process

• Asking the right questions.
• Identifying one’s assumptions.
• Reaching out to other sources.
• Evaluating the data for accuracy, relevance, and completeness.
• Assessing the data and forming hypotheses.
• Evaluating the hypotheses; looking for conflicting data.
• Drawing conclusions.
• Presenting your findings.
Problem Solving Methods are Variations of the Same Process

Thinking Above Your Paygrade

• **Empathy:** Understand problems in the way those you support see them.

• **Problem Solving:** Devise options for solving or mitigating those problems.

• **Communication:** Convey context and options to facilitate their decision making.

Structured Analysis Makes Critical Thinking Explicit

• Definition: “A mechanism by which internal thought processes are externalized in a systematic and transparent manner so they can be shared, built on, and easily critiqued by others.”
  – Facilitates collaborative team work.
  – Considers differences in opinion.
  – Ensures framework is as solid as possible.
  – Provides procedures for qualitative analysis of uncertainties.

--Richards J. Heuer, Randolph H. Pherson

Structured Analytic Techniques Add Rigor, Imagination, and Accountability

- Reinforce solid thinking skills
- Provide a comprehensive taxonomy
- Establish a common lexicon
- Create platform for more inter-organization and intra-organization collaboration

*Teamwork reduces error rates!*

Structured Analytic Techniques
leverage imagination • instill rigor • break mindsets

Imagine
- Structured Brainstorming
- Simple Scenarios
- Alternative Futures Analysis
- Multiple Scenarios Generation
- Quadrant Crunching

Diagnose
- Key Assumptions Check
- Chronologies & Timelines
- Delphi Technique
- Multiple Hypotheses Generation
- Hypotheses Generator
- Analysis of Competing Hypotheses
- Collaborative Analysis of Competing Hypotheses
- Indicators
- Indicators Validator
- Force Field Analysis
- Social Network Analysis

Reframe & Challenge
- What if? Analysis
- Outside-In Thinking
- Red Hat Analysis
- The Pre-Mortem Assessment
- High Impact/Low Probability Analysis
- Deception Detection
- Devil’s Advocacy

Support Decisions
Decision Matrix, Pros-Cons-Faults-Fixes, SWOT, Complexity Manager

Structured Analytic Techniques for Intelligence Analysis by Richards J. Heuer, Jr. & Randolph H. Pherson

- Decomposition and Visualization
  - Chronologies and Timelines
  - CROSS-IMPACT MATRIX
  - Starbursting
  - Nominal Group Technique
  - BRAINSTORMING
    - Basic Scenarios Analysis
    - Alternative Futures Analysis
    - Multiple Scenarios Generation

- Idea Generation
  - Morphological Analysis
  - QUADRANT CRUNCHING

- Scenarios and Indicators
  - Indicators
    - Indicators Validator
    - Argument Mapping
    - Deception Detection
    - Diagnostic Analysis
    - Prediction Market
    - Outside-In Thinking
    - Policy Outcomes
      - Forecasting Model

- Decision Support
  - Decision Matrix
  - Complexity Manager
  - Gantt Charts
  - Process Maps
  - Network Analysis
  - Starbursting
  - Customer Checklist
  - Issue Redefinition
  - Pros-Cons-Faults-Fixes
  - Force Field Analysis
  - Strengths, Weaknesses, Opportunities, Threats Analysis (SWOT)

- Conflict Management
  - Structured Debate

- Challenge Analysis
  - Devil's Advocacy
  - Red Team Analysis
  - Structured Self-Critique
  - Red Hat Analysis
  - Structured Analogies

- Hypothesis Generation and Testing
  - High Impact/Low Probability Analysis
  - What If? Analysis
  - Premortem Analysis
  - Structured Assumptions Check
  - Structured Self-Critique
  - Roleplaying

- Key Assumptions Check
  - Adversarial Collaboration
    - Key Assumptions Check
    - Analysis of Competing Hypothesis
    - Argument Mapping
    - Mutual Understanding
    - Joint Escalation
    - The Nosanko Approach

- Assessment of Cause and Effect
  - Devil's Advocacy
  - Red Team Analysis
  - Structured Self-Critique
  - Red Hat Analysis
  - Structured Analogies
Core Techniques

• Intelligence Training’s “Top Four”:
  – Brainstorming
  – Key Assumptions Check
  – Analysis of Competing Hypotheses
  – Indicators

• Business Consulting “Top Six”:
  – Key Assumptions Check
  – Analysis of Competing Hypotheses
  – Quadrant Crunching
  – Pre-Mortem Assessment
  – Indicators
  – What If? Analysis
Users’ Criteria for Identifying Best Critical Thinking Practices

- Adds rigor
- Fully transparent
- Saves time (over time)
- Makes the analysis more compelling

The Analyst’s Roadmap
Best Practices for Perfecting Your Product

Task 1: Stop and Reflect
- Can your unit make a unique contribution?
- Does the analysis highlight new information and further our understanding?
- Should an explicit warning message be delivered?
- To whom should I reach out at each stage of the process? With whom do I need to coordinate?
- Would the analysis benefit from structured analytic techniques?

Task 2: Focus the Message
- Who are the primary customer(s)? Do we need different versions of the product?
- What key questions must I answer?
- Can I describe the broader context for this topic or issue?
- Have I identified and challenged my key assumptions?
- Am I changing my overall analytic line? If so, did I explain why?
- Can graphics be used to advance and define the message?

Task 3: Develop the Storyline
- Are key drivers and trend lines highlighted?
- Did I identify contrary evidence, and information gaps?
- Are analytic judgments and assumptions distinguished from the underlying intelligence?
- Did I consider past customer feedback, explore opportunities, and assess both benefits and risks?

Task 4: Prepare the Draft
- Is the writing clear, precise, and well-organized?
- Did I put the bottom line up front?
- Is the credibility of the source(s) clearly articulated? Is denial or deception a possibility?
- Are levels of confidence in the judgments and uncertainties clearly expressed?
- Is the analysis free of bias, advocacy, and value laden terms?

Task 5: Perfect the Presentation
- Are the graphics consistent with the analysis?
- Are key terms well-defined? Is a glossary needed?
- Have grammatical errors, typographical errors, and misspellings been corrected?
- Are all markings correct and any handling caveats prominent?
- Have I provided proper footnotes?

Critical Requirements:
- Is the topic clearly relevant to the mission?
- Is the main point prominent and clearly stated?
- Did I identify alternative hypotheses and provide context?
- Is there sufficient reasoning and compelling evidence to support the judgments?
- Does each section, paragraph, and sentence advance the storyline?
- Do my titles and headings effectively capture the message? Are they in synch with the text?
What Are Your AIMS?

A: Audience
I: Intelligence Question
M: Message
S: Storyline & Standards
Five Questions to Focus and Organize

1. What’s going on?

2. Why now?

3. What is the impact so far?

4. What is next or what is the outlook?

5. What are the implications and what can be done about it?
Arguments in Intelligence Writing

• Separate information from analysis to focus attention on assessing what is new or changing; not what is known or is already known to have occurred.

- Information: Facts or evidence
- Assumptions: An analyst’s interpretations of evidence and reasoning
- Judgments: The most significant analytic points or claims in a paper, both the “what” and the “so what”
- Assessments: Judgments about unknowns such as:
  - Who is or will be involved
  - What will happen
  - When it will take place
  - Where it will occur
  - Why it is occurring or will occur
  - What the implications are or will be
  - How it is likely to evolve
Structure of an Argument

• An argument is comprised of a set of statements, one of which is the conclusion or claim that is supported logically by the other statements. The claim is based on reasonable evidence, connected to observable fact, and characterized by clear, traceable, and fair thinking.

• Claim: The assertion or point you are making.

• Reason: How the evidence relates to the claim.

• Evidence: Facts, data, observations that support your reasons and claim.

• Assumption: Something that is taken for granted or is accepted as true or certain to happen.
1. Topic Sentence Outline

DECLARATION OF INDEPENDENCE

When, in the course of human events, it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the powers of the earth, the separate and equal station to which the laws of nature and of nature’s God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation. [SCOPE NOTE]

We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable rights, that among these are life, liberty, and the pursuit of happiness. [PRIMARY ASSERTION]

Such has been the patient sufferance of these colonies; and such is now the necessity which constrains them to alter their former systems of government. [EVIDENCE SUPPORTING VIOLATION OF PRIMARY ASSERTION]

In every stage of these oppressions we have petitioned for redress in the most humble terms: our repeated petitions have been answered only by repeated injury. [PRIMARY ATTEMPT TO ADDRESS VIOLATIONS]

Nor have we been wanting in attention to our British brethren. [SECONDARY ATTEMPT TO ADDRESS VIOLATIONS]

We, therefore, the representatives of the United States of America, in General Congress, assembled, appealing to the Supreme Judge of the world for the rectitude of our intentions, do, in the name, and by the authority of the good people of these colonies, solemnly publish and declare, that these united colonies are, and of right ought to be free and independent states...[FINAL CONCLUSION]
2. Argument Map

Declaration of Independence, 1776

Right And Ought To Be Independent

Right to good government
- All men are equal with certain rights
  - Endowed by the Creator
- Government Instituted to protect rights
  - Government is by the consent of the governed
    - Why?
  - Governed want to secure their rights
    - Why?

Duty to abolish the government
- Duty to overthrow unjust government
  - Why?
- The government is unjust
  - The King is trying to create an absolute tyranny over the colonies
    - Disregarding the law
      - examples
    - Waging war against us
      - examples
    - Parliament is culpable too
- No choice but Independence
  - We tried everything else to no avail
    -Appealed to the Government
    -Appealed to the British people
    -Our efforts were rebuffed
  - Independence will permit us to establish a government that will secure our rights.
3. Venn Diagram: Critical Thinking

- Issues & Customer Identification
- Framing & Argumentation
- Source Credibility
- Logic
- Gaps & Assumptions
- Data & Evidence
### 4. Storytelling

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Storytelling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who</td>
<td>Characters</td>
</tr>
<tr>
<td>What, How</td>
<td>Plot</td>
</tr>
<tr>
<td>When, Where</td>
<td>Setting</td>
</tr>
<tr>
<td>Why</td>
<td>Theme</td>
</tr>
<tr>
<td>So What</td>
<td>Goal</td>
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</table>
The Story Cycle™

Five Habits of the Master Thinker

Establish a culture of challenging key assumptions

Always consider alternative explanations (including the null hypothesis and deception)

Instinctively look for inconsistent data to discard candidate hypotheses

Focus on key drivers that best explain what has occurred or what is about to happen

Anticipate a customer’s needs and understand the overarching context for the analysis

1. Checking Your Assumptions

• Key Assumptions Check: A systematic effort to make explicit and question the assumptions or mental model guiding your interpretation of evidence or reasoning.

Examples:
• A critical, incriminating piece of evidence is valid (i.e., travel records or a translation)
• The DC sniper is single, white, and male, with military training, and driving a white van.

Why Check Key Assumptions?

• Define the underlying assumptions that frame your understanding and assessment of the basic dynamics.
• Challenge weaknesses in thinking.
• Help uncover hidden relationships as well as links between assumptions.
• Generate new ideas and perspectives.
• Reduce chances of surprise should new information render old assumptions invalid.

Key Assumptions Check

The Method:

• List your working assumptions.
• Assess whether each is solid, requires some caveats, or is unsupported.
• If unsupported, assess how this would affect the analysis and key decisions.
• Refine the assumptions as necessary.

2. Generating Multiple Hypotheses

Hypothesis:
A potential explanation or conclusion that is to be tested by collecting and presenting evidence to determine if it can be falsified.

Why Generate Multiple Hypotheses?

Avoid common thinking traps like:

• Satisficing – opting for “good enough.”
• Incrementalism – focusing on marginal changes and narrow range of alternatives.
• Consensus – settling for what elicits the most agreement or is the “preferred” answer.
• Challenge preconceived ideas and first impressions.
• Uncover uncertainties
• Consider the null hypothesis

Multiple Hypotheses Generation

Question:
Should we be concerned that domestic extremists will attempt to disrupt construction of the new highway site that is going to cut through a previously protected state park?

Lead Hypothesis:
A domestic extremist group will attempt to stop construction by disrupting the construction site of the new highway.
Multiple Hypotheses Generation

• Brainstorm the variations of components
  – **Who: Domestic Extremists**
    • Who 1: Earth Liberation Front
    • Who 2: Animal Liberation Front
    • Who 3: Roadblock Earth First!
  – **Why: To Stop Construction**
    • Why 1: To Stop Construction
    • Why 2: To Sway Legislators
    • Why 3: To Get Media Attention
  – **What: Disruption**
    • What 1: Bombing Construction Workers
    • What 2: Sabotaging Construction Equipment
    • What 3: Dropping Pamphlets at Site
• Structure statements based on the various components.

Who 1
Earth Liberation Front (ELF)

Why 1
To Physically Stop Construction

Why 2
To Sway Legislators

Why 3
To Get Media Attention

What 1, 2, & 3
- Bomb Construction Workers
- Sabotage Equipment at Highway Site
- Drop Pamphlets at Highway Site

Permutation 1, 2, & 3
- ELF may bomb the workers to stop construction
- ELF may sabotage the equipment to stop construction
- ELF may drop pamphlets at the site to stop construction

Permutation 4
- Permutation 5
- Permutation 6
- Permutation 7
- Permutation 8
- Permutation 9

Score

Score

Score

Score

Score
Prioritize hypotheses in terms of plausibility for testing.

**Hypotheses for Testing**

2. ELF may sabotage the equipment to stop construction.
11. ALF may sabotage the equipment to stop construction.
21. Roadblock may drop pamphlets at the site to stop construction.
1. ELF may bomb the equipment to stop construction.
20. Roadblock may sabotage the equipment to stop construction.

- Null hypothesis
3. Analysis of Competing Hypotheses

- The identification of a complete set of alternative hypotheses.
- The systematic evaluation of data that is consistent and inconsistent with each hypothesis.
- The rejection of hypotheses that contain too much inconsistent data.

Why Use ACH?

• A proven method to systematically review and evaluate relevant information.
  – Helps identify most diagnostic information.
  – Allows you and others to identify areas of agreement and disagreement.
  – Aids in considering the possibility of Denial and Deception.

The ACH Process

• List hypotheses and information, gaps, assumptions on the horizontal and vertical axes of a matrix.
• Rate the consistency of each item of relevant information with each hypothesis:
  o CC (Highly Consistent)
  o C (Consistent)
  o NA (Non-Applicable)
  o I (Inconsistent)
  o II (Highly Inconsistent)
• Discount those not supported by relevant information.

Example of a Collaborative ACH

Individual Matrix

Once the evidence has been entered, the matrix automatically sorts by diagnosticity and moves the least likely hypotheses to the right.
Applying ACH to Hanssen

- Richards J. Heuer Jr. in an article on Mr. “X” contends that the use of ACH early on in the Hanssen case would have made a big difference.

  - Mr. “X” could have been in either the CIA or the FBI. (In fact, source “A” speculated he was CIA, but source “B” speculated he was FBI.)

  - Nottoway Park “evidence” should have been applied to other possible candidates, not just Brian K.

  - Brian K. did not fit many of the logical matrix categories (financial profile, polygraph, motive, character assessment, psychological assessment).

  - Brian K. reported false flag approach.
4. Key Drivers and Foresight Analysis

Know

Know You
Don’t Know

Don’t Know You
Don’t Know

Do

Research (now)

Monitor (over time)

Scenarios (proactive)

Scanning (passive)

A SIMPLE TAXONOMY OF FORESIGHT TECHNIQUES

Simple Situation
- Short Time Frame (<1 to 2 years)
  - Brainstorming
  - Flipping Assumptions

Complex Situation
- Longer Time Frame (3-10 years)
  - Alternative Futures Analysis
  - Simple Scenarios Classic Quadrant Crunching™

Primary Objective
- Avoiding Surprise
  - Anticipating the Unanticipated

Mapping the Future Finding Opportunities
- Multiple Scenarios Generation
  - Foresight Quadrant Crunching™
  - Foresight Scenarios Decision Tool™


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Alternative Futures Analysis is a systematic method for identifying alternative trajectories by developing plausible but mind-stretching “stories” based on critical uncertainties in order to inform and illuminate decisions, plans, and actions today.

“In the field of observation, chance favors the prepared mind.”

-- Louis Pasteur

Alternative Futures Analysis: The Method

- Alternative Futures Analysis applies the collective knowledge and imagination of a group of experts to:
  - Identify **two key drivers** (forces, factors, or events) that are likely to shape an issue.
  - Assess how these key drivers—when allotted different weights—might play out in plausible **scenarios** that illuminate the future.

- It can also be used as an **investigative tool to reduce complexity, and structure a collection requirements strategy**.

The Family Car in 2020

Gas Prices near $10

Hybrid Minivans or Mass Transit?

Family Size <3

Prius

The Size of US Families

Price of Oil

Family Size >5

Corvettes

SUVs are Back!

Gas Prices near $1.00

The Iraq Insurgency (2006): Using Spectrums to Define Potential Outcome

Neighboring States Stable and Supportive
- Regional defensive umbrella secures borders
- Insurgency is pure Sunni, internal political solution?

Iraqi Security Capability
- Militias integrated into new Iraqi Army
- Jordan brokers deal; economic aid to Sunnis

Ineffective Security Capability
- Syria collapses, influx of new fighters
- Civil War

Effective Security Capability
- Insurgency fragments
- Refugees flow into Iraq seeking safe haven

Neighboring States Unstable or Disruptive

Source: This multiple scenarios illustration is drawn from a report prepared by PolicyFutures, LLC: “Scenarios for the Insurgency in Iraq” published by the USIP (Special Report 174, October 2006).

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Strategic Foresight Decision Tool: Global Climate Change

- Identify the focal issue (industrial sector, geographic entity) to be studied
- List and evaluate key assumptions
- Brainstorm the key drivers
- Develop a set of scenarios postulating different levels of impact (mild, moderate, severe) over different time periods (3, 10, 25 yrs)
- List what measures can be taken to mitigate or overcome the ill effects, selecting best practices from a global clearinghouse
- Consider what can be done to exploit new-found opportunities
- Develop an action plan with appropriate triggers
- Monitor global factors and determine when new actions are warranted

Qualities of Good Indicators

- **Observable:** can be noted by a reliable source
- **Valid:** measures accurately and reliably
- **Reliable:** is consistent across multiple users
- **Stable:** is useful over time to compare
- **Unique:** measures only one thing or, taken with other indicators, points only to the issue in question.

**Specificity is Critical!**
5. Anticipating the Worst Case

PreMortem: Action taken prior to death or, in this application, a systematic analysis of what might go wrong conducted prior to proposing a solution or presenting a paper.

The goal is to reduce the risk of surprise and the following need for a post-mortem investigation.

Impact Matrix

• Helps you assess the impact of a decision by assessing what impact it is likely to have on all key actors or participants in that decision.

• Gives you and your reader a better sense of how the issue is most likely to play out or be resolved in the future.
Structure of an Impact Matrix

<table>
<thead>
<tr>
<th>Actor: Me, Supervisor, Employees, Customers, Colleagues or Counterparts in Organization, Colleagues in Other Organizations</th>
<th>Level of Interest: Low, Moderate, Or High</th>
<th>Impact: P=Mostly Positive 0=Neutral or Mixed N=Mostly Negative</th>
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Impact Matrix: The Method

• Identify all the individuals or groups involved in the decision or issue.
• Rate how important this issue is to each actor or how much they are likely to care about it.
  o Reflect how great an impact the decision would have on their time, their quality of work life, or their prospects for success.
• Categorize the impact on each actor as Mostly Positive (P), Neutral (O) or mostly Negative (N).
The Method, Cont.

• Assess the likely overall reaction to the policy
• Develop an action plan.
  o Identify where the decision is likely to have a major negative impact and consider the utility of prior consultations.
  o Identify where the decision is likely to have a major positive impact and consider enlisting the support of key actors in helping make the decision work.
• Announce the decision and monitor reactions.
• Reassess the action plan periodically based on feedback received.
A Two-Step Process

1. The Premortem Analysis involves unfettered brainstorming, emphasizes creative thinking and more right-brain activity

2. The Structured Self-Critique consists of a series of checklists that require more systematic and left-brain activity

Premortem Question

If six months from now a major attack is launched resulting in massive casualties, where did we fail and what more could have been done to protect our facility?

The Premortem Assessment And Structured Self-Critique

What if my main conclusion or key judgment turns out to be spectacularly wrong?

- Did I ignore contradictory evidence?
- Were my key assumptions valid?
- Did I avoid common analytic pitfalls?
- Did deception go undetected?
- How reliable was my key evidence?
- What should the absence of information told me?

Rob Johnston’s Pathway to Analytic Expertise

<table>
<thead>
<tr>
<th>Novice</th>
<th>Journeyman</th>
<th>Expert</th>
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<tbody>
<tr>
<td>Cases</td>
<td>Patterns within cases</td>
<td>Patterns between cases</td>
</tr>
<tr>
<td>0</td>
<td>10 yrs</td>
<td>50,000 Cases</td>
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Learning Outcomes

• Explain analytic frameworks to structure approaches to solve intelligence-related problems.
• Recognize and be aware of techniques to mitigate the mental traps and cognitive biases that lead to misinterpretations and catastrophic errors.
• Systematically challenge key assumptions.
• Consider alternative explanations or hypotheses.
• Look for and take into account disconfirming and diagnostic data.
• Identify ways to generate and use key drivers and indicators to track events and consider alternatives.
• Apply the Impact Matrix to assess the impact of a decision on their organization.
• Address potential for disruptive changes through the Premortem Assessment and Structured Self-Critique.
Contact Information

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## Cognitive Bias & Intuitive Traps

Mental errors caused by our brain’s simplified information processing strategies.

### Key Characteristics

<table>
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<tr>
<th>Quick to form</th>
<th>Information is made to fit into an existing conceptual framework</th>
<th>Initial, incorrect perceptions persist even after better information is available</th>
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<tbody>
<tr>
<td>Highly resistant to change</td>
<td>We don’t see new patterns emerging</td>
<td>We ignore or dismiss outlier data as noise</td>
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**Answer**

**Ignore**
The most effective long-term support an analyst can provide is to:

- Describe the forces expected to shape a decision
- Identify several potential outcomes
- Select indicators or signs that would provide early warning.

Focus on prediction often overlooks:

- Emotions and habits that cause people to take actions counter to their best interests.
- Influence by others or cultural values of which analysts may not be aware.