

The Future of "Alternative Analysis"

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My presentation is about the future of what has come to be called "alternative analysis." Alternative analysis refers to a variety of analytical tools and tradecraft procedures that are being taught at the CIA and elsewhere in the Intelligence Community. These are simple tools that can be used by the average analyst who is not trained, and often not interested, in either statistical analysis or other formal methodologies.

They are tools for thinking – to provide some systematic structure to the analysis, question assumptions, visualize a complex issue, and generally deal with the various cognitive limitations and biases discussed in my book *the Psychology of Intelligence Analysis*.¹ They include structured analytic techniques such as analysis of competing hypotheses, key assumptions check, argument mapping, structured brainstorming, and red team analysis.

My hope is that the term "alternative analysis" will eventually become obsolete because these tools will have become fully integrated in the day-to-day, mainstream process of analysis. I want to tell you about three things that are now happening at CIA that suggest we may be making progress in that direction.

1. The development of more tools and an organized program for assisting analysts in using those tools.
2. The automation of these tools when it will facilitate their use in a collaborative environment.
3. The development of a new, web-based platform for interoffice and interagency collaboration when using these automated tools. That is what I expect will accelerate use of these tools.

Regarding automation, I think most of you know that the Analysis of Competing Hypotheses (ACH) tool, that I developed over 20 years ago for the analysis of deception, has recently been automated, and that software is now in use at CIA. It is also now being taught to analysts

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at a number of other agencies. The software was developed with funding from what was then called the NIMD program at ARDA. It is now available to the public for downloading at no cost from a Palo Alto Research Center web site at www2.parc.com/istl/projects/ach/ach.html.

What you may not know, is that the success of ACH at CIA recently prompted the agency management to direct that additional tools be identified and automated, and that process is now underway. Existing tools that are currently under consideration for automation are structured brainstorming and what CIA calls Key Assumptions Check. A tool that structures the analysis of short-term political instability has recently been upgraded and is now available on laptop to CIA analysts. The Kent School will be taking a hard look at a tool for concept mapping, called Cmap that is now in wide use at NSA. A very interesting thing about this tool is that it is web-based and comes with the functions needed for interoffice and interagency collaboration in using it.

Functionality for collaboration is especially interesting because CIA has just approved funding to convert the current ACH software, which was designed for stand-alone system for a single user, to a web-based tool that can be used either in a stand-alone mode or in a collaborative mode by analysts in different offices and different agencies. The goal is to develop a collaboration platform that will support not just ACH, but also a number of tools.

For those who may not be familiar with ACH, I'll describe briefly what it is, and then talk about the potential significance of being able to use this as a tool for interagency collaboration.

ACH is a simple model for how to think about a complex problem. The software takes the analyst through a process for making a well-reasoned, analytical judgment. This process breaks a complex analytical problem down into its component parts. One part is a set of alternative hypotheses, or possible explanations about why something has happened, what is happening, or what will happen. The other part is all the evidence, arguments, and assumptions that are useful in assessing these hypotheses. To facilitate analysis, the analyst puts this information into a matrix with the hypotheses across the top, and the evidence and other arguments down the side. For each item of evidence or argument, you also enter the type of source, your assessment of the credibility and relevance of the evidence, and your rating of the consistency or inconsistency of that item with each of the hypotheses.

One important feature of ACH is the requirement to refute hypotheses rather than confirm them. The most likely hypothesis is the one with the least evidence against it, not the one with the most evidence for it. You will recall that refuting hypotheses rather than confirming them

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is a key element of the scientific method. So a unique insight behind ACH is that this important part of the scientific method can and should be applied to the analysis of murky political and international questions where the scientific method has generally been thought to be not applicable.

This is very different from conventional intuitive analysis that focuses on what the analyst intuitively suspects is the most likely answer and then assesses whether or not the available evidence supports this answer. Going with the first answer that seems to be supported by the evidence is efficient, because it saves time and works most of the time. It is usually also a safe approach, as the result may differ little, if at all, from the conventional wisdom. However, the analyst has made no investment at all in protection against surprise, and preventing surprise is one of the main functions of intelligence.

Trying to refute multiple hypotheses gives the analyst a different perspective and drives a broader search for information than busy analysts would otherwise pursue. I'll illustrate this with a couple examples of intelligence failures that show how the failure might have been prevented if a structured analytic technique like ACH had been used.

India Nuclear Test: Indian testing of a nuclear weapon in 1998 took the Intelligence Community by surprise and prompted considerable critique and introspection about U.S. intelligence performance. Shortly before the test, the Intelligence Community had concluded "there is no indication the Indians would test in the near term."² The analyst's assumption that any preparations for a nuclear test would be observable in advance was never questioned. If ACH had been used for this analysis, this would not have happened. One of the hypotheses would certainly have been that India is planning a nuclear test in the near term but will conceal preparations for the testing to avoid a repetition of what happened in 1995/96. In 1995/96, India did little to conceal its preparations for a nuclear test. As a result, the Intelligence Community discovered these preparations and the U.S. applied enough pressure to cause India to cancel its test plans.

Consideration of alternative hypotheses would have required the analyst to evaluate India's motive and capability to conceal its intention until it was too late for the U.S. to intervene. It would also have required assessing US intelligence ability to see through Indian denial and deception if it were being employed. If the alternative hypothesis had been considered, it would have been very difficult to refute. At a minimum, this would have elevated awareness of the possibility of successful Indian deception.

CIA analysts who are using ACH report that the software is user-friendly, helps them use better critical thinking skills, helps them

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generate a better array of alternative hypotheses, and helps account for potential deception. FBI analysts like it, because they see it as a great way to organize all their evidence as they proceed with a case investigation.

Many CIA users report that their preferred use of ACH is to gain a better understanding of the differences of opinion with other analysts or between analytical offices. The process of creating an ACH matrix requires identification of the evidence and arguments being used and how these are interpreted as either consistent or inconsistent with the various hypotheses. Review of this matrix provides a systematic basis for identification and discussion of differences between two or more analysts. They also note that reference to the matrix helps to depersonalize the argumentation when there are differences of opinion.

The current version of the ACH software was designed as a stand-alone system for a single user. If multiple analysts want to collaborate in an ACH analysis, they must huddle around a single computer screen, and there is no way to compare automatically matrices developed by different analysts using the same set of hypotheses and evidence

As previously noted, CIA recently approved funding to develop a new version of ACH for use in a collaborative environment. The important thing about Collaborative ACH is that it will be designed as a web-based tool to be installed on Intelink to facilitate collaboration across organizational boundaries, and through all the firewalls, within the Intelligence Community. The collaboration functions designed to support Collaborative ACH will also be available to support other tools. This is now at the initial planning stage.

We have an ambitious goal. That is to change how the interagency coordination process works. In discussing this last year with Carmen Medina, then CIA Deputy Director for Intelligence, she noted that, "At a coordination meeting, the last thing the author of a report wants to hear is a new idea." At this point in the process, positions are already locked in, and the outcome of discussions is often determined more by bureaucratic bargaining or influence than by informed analysis. That's a dysfunctional process.

Collaborative ACH will enable a group of analysts interested in the same problem, but working in different offices or agencies, to collaborate electronically to implement the ACH model as a collaborative process.

Analysts with common interests in different agencies, or different parts of the same agency, will be able to establish a common virtual workspace on Intelink, the Intelligence Community's common

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classified network. In this common workspace, they will be able to propose hypotheses, organize and access a common set of evidence, create and compare and share ACH matrices, and have a “chat” tool for informal communication about the matrices or any other topic. This tool will provide for both synchronous and asynchronous chat. Access to this virtual workspace will be limited to registered participants in a specific project and approved observers. Observers will be able to read and ask questions or make comments or suggestions, but will not be able to add or edit any item of evidence or evaluation of the evidence.

We believe this has the potential to redefine the coordination process.

It can ensure that analysis starts with a common definition of the problem, i.e. identification of a common set of alternative hypotheses (possible explanations or outcomes that need to be examined).

All participants will work from the same set of evidence. Any participant can add an item of evidence, and all other participants are then required to evaluate that evidence. This ensures that every participating analyst has an equal opportunity to express his or her views.

Assumptions are discussed and made explicit, while differences of opinion between analysts become apparent through different ratings of the evidence. Thus differences of opinion are surfaced, discussed, and resolved to the extent possible early in the coordination process.

When there are differences of opinion, comparison of ACH matrices provides a mechanism for tracing the origin of the differences and analyzing how much effect, if any, they have on the final conclusion.

The ACH process also provides a framework for clear presentation of an analytical conclusion, or discussion of alternative views, at a coordination meeting or in an analytical report.

The goal of the original ACH software was to lead individual analysts through a structured process that changes how they think about alternative explanations or outcomes. The goal of Collaborative ACH is even more ambitious – it is to change how Intelligence Community analytic organizations develop assessments and estimates. It is sometimes said that communication is the basis for culture. If this is true, then opening new means for interagency communication in virtual workspaces on Intelink can be a big step toward changing the culture of our independent analytical fiefdoms.

This future ability to use all the various alternative analysis tools to structure collaboration between analysts across office and agency

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boundaries is what makes me optimistic that alternative analysis will eventually become mainstream analysis.

¹ Published by CIA Center for the Study of Intelligence, 1999, pdf. version available at <https://www.cia.gov/csi/books/19104/index.html>.

² Transcript of Adm. David Jeremiah press conference on Intelligence Community failure to warn of India's nuclear tests, June 2, 1998.