

Accelerated



Analysis

The Mercyhurst Method: Agility and Speed for the 21st Century

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Accelerated Analysis (AA) is not a support group, nor a hyper-speed component for your computer, nor is it a methodology. It is a multi-step process most aptly described as an analytic framework, which need not follow a linear trajectory to be successful. AA helps the analyst to construct a meaningful conceptual model, literally from nothing. It can be imagined simply as a blank sheet of paper and a pencil, but not a pen.

The accelerated analysis framework allows generalist analysts to become veritable subject matter experts in as little as ten weeks, on a topic about which they may have had only little or general knowledge about before they were given the task. This method enables analysts to provide exceptionally nuanced strategic estimates that, in one study, proved as statistically accurate as those produced by subject matter experts. It does not take the place of any analytic *methodology*, but as an alternative analytic *process* accelerated analysis permits analysts to use any one or a combination of methodologies through the estimative process.

EXTREME PROGRAMMING AND PROTOTYPING

Existing models already reflect the successes made possible by accelerated working conditions. Two fields in particular have widely adopted a similar structure and scheduling. In software development, the concept is called extreme programming (XP) and is rapidly gaining industry acceptance and momentum. XP differs from traditional programming methods primarily by placing a higher value on adaptability than on predictability. In the software world, XP is viewed as having an uncanny ability to jointly “reduce project risk, improve responsiveness to changing/

vague requirements, and to allow a system to grow naturally while at the same time facilitating an enjoyable development environment” (Pyritz 2003 p98).

The manufacturing industry is beginning to adopt accelerated scheduling, where rapid prototyping (RP) helps deliver products such as medical devices to market faster. By speeding up prototype part fabrication, RP enables engineers to assess critical design factors such as ergonomics and aesthetics early in development while decreasing the time spent in the modeling process. RP also helps the non-technical side of production by improving communication between design teams and management as well as with customers (Pyritz 2003).

Extreme programming, rapid prototyping, and accelerated analysis are all based on iterative rather than sequential steps and facilitate communication among interested parties, specifically when stressing the importance of feedback. All approaches decrease the time spent on each task while improving the end quality.

HOW IT WORKS

Traditional project schedules proceed as a series of linear phases. The first determines the scope of the project and the second is devoted to the project design process. The third step is design execution, followed by final production. Only after all four steps are completed is the final product tested. This process is analogous to the intelligence briefing or product publication.

The major flaw in the traditional schedule is that it assumes the analyst knows the outcome and required timeline from the very first step, a concept almost antithetical to

intelligence analysis. If the intelligence target was clearly understood from the start, there would be no need for an estimate.

Analyze, rinse, repeat

This agile and responsive structure is characterized by iteration of simple processes that build analysis by creating a constant feedback loop between the decision-maker, the project manager, and the analyst. This encourages constant re-evaluation and adjustment of the project's course and quickly eliminates bad ideas before they gain momentum. This alternative style of project scheduling and structure is analogous to a washing machine that repeats the same basic process many times over (Reichelt 2007). While the water temperature or speed of the cycle may vary, the repetitive agitation efficiently gets the job done.

As an overarching analytic process, accelerated analysis does not preclude but actually encourages the disciplined application of analytic techniques such as analysis of competing hypotheses, social network analysis, benchmarking, or any others appropriate to the target.

Analytic wind sprints

Because accelerated analysis is an iterative process, analysts typically spend the first 80% of their project time conducting a series of 'analytic wind sprints' whereby they produce short form reports on different though ultimately interrelated topics. After each cycle, they receive feedback on the analytic rigor and the rationality of their analysis, a process that forces early analytic judgments. While many early estimates may never be included in the final product, they serve the very real purpose of establishing points of reference while avoiding the pitfalls of confirmation bias.

Although seemingly counterintuitive, after a certain point of collecting information analysts often start to see all information as confirmatory of one position and disregard alternative information as irrelevant (Yudkowsky 2007). In the study of heuristics and in cognitive psychology, this effect is 'confirmation bias' – people tend to seek confirming but not falsifying evidence. When a belief is emotionally charged, as in a political argument, the effect is larger and causes more resistance to change than in more neutral subjects. With accelerated analysis, an analyst new to a topic is highly likely to emerge with more accurate, unbiased estimates than those of traditional subject matter experts who have had longer to develop their biases.

Since accelerated analysis has primarily been applied in an academic setting, it typically takes place over a ten-week term. Toward the end of the first eight weeks, analysts have usually dug just deep enough into their various topic facets to have individually collected approximately 12 short, estimative reports. Then they look across their completed estimates and determine if a capstone finding has emerged. Because their

final analysis draws from a wide range of interrelated topics, they have developed appropriate nuances in the estimates to reflect the constituent "who, what, where, when, why, and how" to give their decision-makers specific and actionable intelligence.

Sly and wily as...an analyst?

According to Philip Tetlock's research based on analyzing geopolitical predictions, experts are surprisingly ineffective at correctly estimating the likelihood of future events (Tetlock 2005). Beginning in the 1980s, Tetlock surveyed professional experts who made their living by commenting or offering advice on political and economic trends of significance to the well-being of particular states, regional clusters or states, or the international system as a whole. He asked them to make predictions about future events both within and outside their expertise area.

The results were humbling: the experts did no better at predictions in their own field of study than did 'dilettantes,' the experts from other fields who were just drawing on their general knowledge. Amazingly enough, some experts did substantially worse. Clearly, experts fall victim to confirmation bias just as readily as anyone else does. As experts they simply have more information and are thus able to more readily weave a convincing story.

What was the question?

The iterative process prevents analysts from misinterpreting the estimative question or from avoiding the common scenario where their decision-makers do not know the exact question they need to ask. A clear question serves as the focusing tool for the analyst and ensures that information is relevant and interesting, and avoids distraction from equally interesting but irrelevant information. Accelerated analysis' inherent feedback loop provides the opportunity to constantly refine task requirements.

SIDEBAR 1. FOX OR HEDGEHOG: WHO THRIVES IN THE 21ST CENTURY?

If we want realistic odds on what will happen next, coupled to a willingness to admit mistakes, we are better off turning to experts who embody the intellectual traits of Isaiah Berlin's prototypical fox – those who "know many little things," draw from an eclectic array of traditions, and accept ambiguity and contradictions as inevitable features of life – than we are turning to Berlin's hedgehogs – those who "know one big thing," toil devotedly within one tradition, and reach for formulaic solutions to ill-defined problems.

- Philip Tetlock, *Expert Political Judgment*

HOW THE METHOD WAS DEVELOPED

The big risk behind any conceptual model for an analyst is that it becomes “written in pen.”

Kristan J. Wheaton, MCIIS

Mercyhurst College Institute for Intelligence Studies (MCIIS) developed the accelerated analysis process to train future analysts in business, law enforcement, and national security intelligence. Originally a by-product of academic necessity, MCIIS’s alternative theory of analysis emerged over several years. Although its discovery was largely accidental, our initial evaluation hints at surprisingly accurate results.

Many intelligence students and several funded research projects, most notably for the US Department of Defense, facilitated the development and application of this accelerated analysis process. Over time, MCIIS has nurtured the development of this new analytic system, characterized by a rapid production schedule, increased accountability, and structured analysis.

The visual of blank paper and a pencil reminds us that until the final estimate is presented to the decision-maker, nothing is permanently committed in ink. The accelerated analysis process itself requires items to be added, removed, and rearranged like a puzzle until the whole picture becomes clear.

Mercyhurst Professor Kristan Wheaton, who developed the process through several iterations, tells his students:

a model can take on a life of its own and if the analyst never goes back and reviews the model, they continue down a path that leads to a false conclusion. It is, therefore, necessary to go back and review your model periodically to see if it still makes sense or if it needs to be changed to reflect new information or a new understanding of the information you already have.

EVALUATION METHODOLOGY: FOCUS ON ACCURACY AND NUANCE

To evaluate the level of accuracy of estimates produced using accelerated analysis, we used a descriptive historical design as the base for the research methodology. This design was established to perform a comparison of accuracy and nuance between declassified National Intelligence Estimates (NIEs) written by the National Intelligence Council (NIC) and Country Outlook Studies (COSs) written at MCIIS, as this is the only method suitable for hypothesis testing using historical data (Sproul 1988). The historical design assessed the probable relationships among variables using primary source documents. The accelerated analysis research hypothesized that MCIIS COSs produced with accelerated analysis would have accuracy comparable to their counterpart NIC NIEs.

A secondary research focus examined the level of nuance present in each group’s estimative statements. Equal levels of nuance between the two groups would suggest they have comparable scope. This would weaken the argument that one of the two groups made estimative judgments so broad as to artificially increase their accuracy scores in comparison to the other.

The first sample was 116 estimative statements made across 20 randomly selected NIEs. The comparative sample was 123 individual estimative statements spread across 11 COSs. This was the only population eligible for evaluation because these are the first group of estimates produced under accelerated analysis conditions where the window for estimates to be proven accurate has closed. The only caveat in the selection of COSs was that they were authored by students who received an A or B in the class. The rationale behind this was that students were graded based upon their mastery of the process, not on the accuracy of their estimates (a factor indeterminable, given that COS projects are graded as they are produced).

Accuracy

For an estimative statement to be considered accurate, it had to exactly meet the criteria outlined in the estimate itself, thus limiting bias to the maximum extent possible. For example, if an estimate predicted something to occur within twelve months and it occurred twelve months and one day later, then it was judged inaccurate.

Researching the overall accuracy of estimates by both groups revealed an overwhelming similarity. No significant difference appeared between the predictive accuracy of undergraduate MCIIS students and NIC analysts: their estimates are statistically equal in their predicative accuracy. While a longitudinal analysis of predictive and estimative

TABLE 1: ANALYTIC DESCRIPTORS

20th Century Analysis	21st Century Analysis
Cautious, careful	Aggressive, bold,
Fact based	courageous
Concrete, reality based	Intuitive
Linear, trend based	Metaphor-rich
Expert based	Complex
Hierarchical	Humble, inclusive,
Precedent based	diverse
Worst-case, warning focused	Collaborative
Text based	Precedent-shattering
Detached, neutral	Opportunistic,
	optimistic image-rich
	Customer-drive, policy relevant

trends is impossible for COSs, NIE analyses revealed a fluctuation in accuracy, most likely due to an inconsistent sample size across decades.

Nuance

After selecting the two sets of estimates, they were each coded for nuance, based on the six tenets of good journalism, “who, what, where, when, why, and how?” An estimative statement was awarded one point for each question answered, for a possible cumulative maximum score of six points.

An analysis of the nuance levels of NIE and COS estimates reveals a statistically significant difference between the two: COS estimates are more nuanced than their counterparts. COS estimates’ average nuance score was 4.9 out of 5, while the NIEs’ averaged 4.3. COSs also have 72% more estimates that have a perfect six out of six nuance level score while having 61% fewer estimates with the lowest possible score of three.

Meeting the IC’s own gold standard

While the process of producing COSs and NIEs is similar in many ways, three noteworthy distinctions exist. Perhaps the most obvious difference, the COSs are the product of an individual undergraduate student while the NIEs, according to the NIC mission statement, are the “DNI’s [Director of National Intelligence] most authoritative written judgments concerning national security issues. They contain the coordinated judgments of the IC” and are thus presumably written by a group of substantive experts easily labeled as masters of the analytic and estimative tradecraft. While possible, it is not plausible that this difference alone would account for the comparative accuracy of COSs.

The second obvious difference between the two products is that MCIIS uses entirely open source information while the NIC has access to classified sources. Again, while possible, it would seem implausible to assume that open source intelligence is the primary variable raising the MCIIS analysts to the predicative levels of the NIC.

The third, and most relevant for our purposes, is the substantial difference in the analytic process. The limited sources evaluating the NIC’s methods indicate primary use of the read-think-write process along with inconsistent and seemingly rare use of alternative analytic techniques. Furthermore, according to the Vice Chairman of the NIC, an NIE prepared in 60 days would be considered a very fast schedule and NIEs typically take three to six months to complete. In comparison, MCIIS analysts complete their COSs with accelerated analysis during a ten-week term using strict research, analysis, and writing guidelines characterized by the iterative analytic cycle and condensed production schedule.

The results of the study are counterintuitive: students, no matter how well educated or versed in the art of analysis,

should not be making strategic level estimative judgments at a predictive accuracy rate equal to the very best in the business. This clearly indicates that accelerated analysis is the greatest probable factor contributing to the surprisingly competitive accuracy achieved by MCIIS “dilettantes.”

NIC ENDORSEMENT OF THE ACCELERATED ANALYSIS METHOD

The only way to prove a causal relationship between increased estimative accuracy and accelerated analysis is for the Intelligence Council itself to run an experiment testing just that. In 2007, the NIC invited a group of graduate students from MCIIS to use their Strategic Intelligence class project to support and augment NIC work on global disease. The assignment for the 26 students was to write their own wiki-based “National Intelligence Estimate” on the topic of global disease and its strategic impacts.

The NIC project coordinator posed a “key estimative question” and gave the team telephone access to key IC analysts. The MCIIS wiki product, completed within the 10-weeks of their Strategic Analysis course, contains over 1,000 individual pages. It assessed the strategic impact of disease in almost every corner of the globe, employed a rigorous methodology to define both “U.S. National Interests” and “Impacts of Disease,” and was based on a wide range of open source research materials. In referring to the MCIIS product, the NIC declares on its Website:

We consider this product an invaluable contribution to the NIC’s global disease project: not only in terms of content, but also for the insights it provides into methodological approaches (NIC 2007)

CONCEPTUAL MODELING

The process of using accelerated analysis to create a conceptual model has several useful by-products. Most importantly, it helps determine the topic areas that need to be covered, therefore organizing the findings in a logical manner.

It can also help plan collection. The conceptual model identifies the kinds of information needed to fully address the requirement. The various iterations increase the detail and effectiveness of the model, which informs the collection process and ensures a focus on valuable, relevant evidence from reliable, relevant sources.

Another advantage that becomes apparent later in the project is in determining the analyst’s level of confidence in the final estimate. Addressing all the requirements implicit in the conceptual model should lead to higher confidence and vice versa.

IMPROVING THE DECISION-MAKING PROCESS

In a late 2001 *Studies in Intelligence* article, Carmen Medina noted that modern decision-makers have an increasingly sophisticated ability to independently collect and analyze their own information, so analysts must be increasingly client-focused in their analysis. While no single adjective from the Medina's list in Table 1 would be particularly groundbreaking, as a group they describe an undeniable evolutionary shift, even a revolutionary cultural change in analysis.

In January 2007, the Office of the Director of National Intelligence (ODNI) released new policies and procedures as outlined in Intelligence Community Directive Number 200, showing an increased recognition of alternative solutions to the IC's analytic shortcomings (DNI 2007). One of the main themes on which the DNI based ICD-200 is:

The analytic process must be as transparent as possible. IC analysts must support their judgments and understand the reliability of the sources upon which they depend. Further, analysts must engage with their customers early on, and remain engaged throughout the analytic process (DNI 2007 p2).

A MODEL FOR BUSINESS

Accelerated analysis also has long-term benefits for the decision-making process, particularly for small- and medium-sized businesses. This method can do for other enterprises what rapid prototyping does for manufacturing. Combining the process with a wiki or other on-line collaborative tool enables even more efficient use of analytic resources and lowers the cost of information acquisition, the number of analysts needed, and the amount of time required to produce quality assessments that can reduce the risk of action or inaction for decision-makers.

Further developing and sharing this "lean tech" approach to problem solving into a physical product in the form of a software application or platform can enable small- and medium-sized businesses to seek the kind of decision-making assistance typically only available to large firms with the resources to have their own marketing or design departments.

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SIDEBAR 3: ONE BIG THING OR MANY LITTLE THINGS?

The intellectually aggressive hedgehogs knew one big thing and sought, under the banner of parsimony, to extend the explanatory power of that big thing to "cover" new cases; the more eclectic foxes knew many little things and were content to improvise ad hoc solutions to keep pace with a rapidly changing world.

- Philip Tetlock *Expert Political Judgment* p20

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