

## Intelligence Analysis, Synthesis, and Automation

*Alice B. Borene*

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***The premise that AI/ML will unlock correlations and relationships inaccessible to the human mind—often mixed with a dash of magical thinking—underlies much of the IC’s interest in the field.***

*Editor’s note: This article was originally published in 2020. We reprise it here because in the intervening three years, as she anticipated, large language models powering generative artificial intelligences like ChatGPT and Google Bard have moved from promise to reality and become the subject of worldwide use—and debate. As Borene makes clear, no knowledge industry, including intelligence, is immune from its effects.*

The future of intelligence analysis has been a hotly debated topic in the last few years, as thinkers inside and outside the Intelligence Community have struggled to make sense of an analyst’s place and value at a time when artificial intelligence, machine learning, and automation are changing the relationships between people and their work. As with other industries, the question is not so much if machines will be incorporated into the work but how and when and in what capacities.

Joseph Gartin’s article in *Studies in Intelligence*, “The Future of Analysis,” speculated about the analyst’s role in this workflow of the future, positing that artificial intelligence and machine learning (AI/ML) tools

are going to be essential to analysis in the coming years. In the world he describes, AI “sifts data, spots discontinuities, and synthesizes results; analysts provide theory and structure.” His vision has analysts leveraging data science to deliver more insightful analysis on a wide array of problems with increased accuracy and shortened feedback loops. Gartin notes that many other fields of knowledge work such as medicine and law are undergoing a shift, “being outsourced to algorithms,” and argues that similar changes are likely to come for intelligence analysis.

What sorts of changes those will be depend on what sorts of tools we are thinking about. In 2019, the Brookings Institution published a set of papers breaking the question down into two categories—AI/ML and automation—and examining the impact of tools in those categories on the workplace.<sup>a</sup>

Artificial intelligence and machine learning comprise a vast and growing set of applications. Many of them are focused on sifting through vast troves of data, recognizing patterns, detecting anomalies, and so on; this is work humans are largely unable to do, given the overwhelming quantity

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a. Mark Muro, Robert Maxim, and Jacob Whiton, with contributions from Ian Hathaway, “Automation and Artificial Intelligence: How Machines Are Affecting People and Places,” (Brookings Institution Metropolitan Policy Program, January 2019) and Muro, Maxim, and Whiton, “What Jobs Are Affected by AI: Better-paid, Better-educated Workers Face the Most Exposure,” (Brookings Institution Metropolitan Policy Program, November 2019).

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of data and difficulties inherent to correlation at scale. The premise that AI/ML will unlock correlations and relationships inaccessible to the human mind—often mixed with a dash of magical thinking—underlies much of the IC’s interest in the field.

Automation, on the other hand, is best suited for routine tasks, substituting for and complementing labor. In general, a routine task is one that is predictable and can be performed over and over with little or no variation. When we think of automation, we tend toward the physical—an assembly line of robots building a car—but routine cognitive tasks can be automated as well, such as transferring data from one system to another. This is work that humans are capable of doing but that a machine might be able to do more accurately, faster, or without succumbing to the boredom of repetitive work.

At first glance, this suggests that analysts might benefit from AI/ML, but they are likely to be immune to the effects of automation. After all, analysts are high-skill workers, who rely to a great extent on abstract thought, seeing the connections between disparate facts and building out probable consequences. To this end, much of the work done on the further integration of machines into the analytic workflow focuses on AI/ML as a tool to uncover patterns in big data sets or correlate seemingly disparate facts to generate a predictive capability.

However, it is premature to dismiss automation. Economists suggest we should conceptualize automation by thinking about tasks, not skills. Tasks are defined as what people do at work, while skills are the capabilities people possess to carry out those activities.<sup>a</sup> If we move away from viewing analysis as the application of a discrete skill or skill set and toward visualizing it as a series of tasks, a different picture emerges.

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***All Analysis is Not Equal***

We have traditionally treated writing analysis as something skill-based rather than task-based, something only a human can do. After all, drafting analysis requires judgment, deep background knowledge, unstructured problem-solving, strategic thinking, and imagination, all things that could broadly be characterized as “sensemaking, the cognitive shortcut of putting new developments into a heuristic framework that we all use to categorize events and anticipate the future,” per Gartin’s description of analysis.<sup>b</sup> Sensemaking, writ large, is one of the key skills the analyst brings to the tasks of analysis, and the need for sensemaking is one of the prime reasons analytical writing is a task we often perceive to be poorly suited for automation.

That assertion holds true if we treat all analysis as equal. But what if all analysis is not equal? What if some of what we call intelligence analysis is not really analysis at all,

but a set of predictable cognitive tasks suitable for automation? All-source intelligence comes in many different flavors. One is what we might typically think of when we think of analysis: strategic analysis based on specialized collection that informs the reader of something he or she would not learn through unclassified sources. This undoubtedly requires sensemaking, as the analyst puts the new facts into context and explains why this matters, how it changes the outlook, and what courses of action stem from this new information.

But there is another type of intelligence writing that does not require the application of the sensemaking skill. By far the most common type of finished intelligence production in the IC is what could be termed “news,” production that simply informs the reader about world events. Perhaps half of what the all-source analytic community produces falls into this category, in my experience. By this I mean that the topic has no inherent connection to the work of intelligence, is not specifically curated to discuss the topic’s impact on intelligence concerns, deals with global or regional issues widely discussed in the press, and is sourced overwhelmingly to open source material.

Take for example an analyst writing an article about the response of an international entity to COVID-19 early in the arc of the pandemic. The sources for that piece could be entirely unclassified and available on the internet, with perhaps one instance of what analysts call background and analysis—a point all

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a. Ibid.

b. Joseph Gartin, “Future of Intelligence Analysis.” *Studies in Intelligence* 63, no. 2 (June 2019).

know to be true but that cannot be attributed to a single source.

This is synthesis, not analysis: key points of several open source news articles have been combined into one, presumably so readers can gain maximum understanding of the issue without actually having to read a dozen essentially similar articles. Given the uncontested nature of the facts in play here, sensemaking is not a necessary component of this process; in that case, because application of skill is not necessary, does it meet the criteria for automation?

Synthesis is a low-skill task performed by high-skill workers—namely analysts. It is a predictable cognitive task, requiring little to no imagination, judgment, or strategic thinking. It is also time consuming, not only for the analyst doing the writing, but for managers, reviewers, and editors who collaborate on analytical production. Using the criteria set out by the task analysis above, this, the largely unclassified synthesis of commercially available open source articles, is better suited for a machine.

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### ***Read Stuff, Write Stuff—the Right Stuff***

Leaving to others to discern the extent to which this volume of IC “news” production is worthwhile or adds particular value for consumers, the next question is whether it is important that analysts spend their time writing these articles. After all, such articles are drawn principally from open sources, and rarely include

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an intelligence-specific tie-in—is this really the work of analysis?

Because of the focus here on open sources, these questions might read as a case study in the secrecy heuristic; they are not intended to be. In his article, Gartin boils down the essential functions of an analyst to “read stuff, write stuff.” Of course, people in other professions read stuff and write stuff too, often on topics germane to the IC, like political or economic developments in foreign countries. They are journalists, academics, think-tankers, NGO workers, freelancers. Like Sherman Kent and his collaborators whom Gartin cites—and like analysts today—many are educated at prestigious universities and focus on political, economic, and social questions relevant to IC customers and to policymakers more broadly. Many are acknowledged experts in their field.

In addition to these traditional knowledge workers, whole industries focused on news generation and curation have proliferated. Some of these are industry-specific: the oil and gas industry is supported by several de facto intelligence publications, each focusing on developments, trends, and forecasts providing tailored information. Less narrowly, news aggregation services—some explicitly themed, others customized according to a user’s preferences—perform sensemaking functions on the vast universe of news available

on the internet by creating tailored feeds of stories likely to be of interest.

Here we come to the question of the value proposition: if the information is already easily accessible, with content directly relevant to policymakers and with a multitude of options allowing for customization to a particular set of specifications, why devote so much of the human capital and time of the very costly intelligence enterprise to producing bespoke news made from other news? And why are humans so involved in this process?

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### ***Giving People Their Time Back***

In the private sector, this sort of predictable, non-novel production increasingly is automated. In early 2019, roughly a third of Bloomberg News content was computer-generated or augmented by automation, as were earthquake and homicide reports in the *Los Angeles Times*; high school football coverage and state and local election results in the *Washington Post*; and minor league baseball coverage in the Associated Press.<sup>a</sup>

To be sure, humans have a role in producing these stories. Behind every bot publishing a blurb about the outcome of a quarterfinal event at the Olympics is a team of people who crafted a template for that type

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a. Jaclyn Peiser, “The Rise of the Robot Reporter,” *New York Times*, February 5, 2019; Nicole Martin, “Did a Robot Write This? How AI is Impacting Journalism,” *Forbes*, February 8, 2019; Lucia Moses, “The Washington Post’s Robot Reporter Has Published 850 Articles in the Past Year,” *Digiday*, September 14, 2017.

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of story, tested it, and reviewed the final product. Humans are very much in the loop, even if they are not doing the writing for these types of stories.

And what of the journalists? To hear newspapers tell it, automation has freed journalists up to focus on stories that matter, stories that require imagination, creativity, and dedication—the human touch. In all, the AP reports its financial journalists got back 20 percent of the time they

used to spend on financial reporting once the company started using a bot to write basic earnings reports. It gave them time they could use to dig deeper into stories.

The Intelligence Community could follow a similar model when it comes to news production. Machines can curate stories, and even synthesize them, allowing the creation of a customized feed suiting a consumer’s specific interests. Analysts could be

doing better things with their time, using this baseline news feed as a starting point and adding value by leveraging their skills—sensemaking, generating hypotheses, and exploring scenarios—and incorporating information derived from classified reporting.

One of the goals of incorporating automation and AI/ML into the analytic process is to let humans do things that only humans are good at, such as tasks involving judgment, unstructured problem-solving, strategic thinking, imagination, and collaboration. Freeing them from open-source synthesis would be a start.<sup>a</sup>



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a. See Puong Fei Yeh’s article, “Automated Analysis: The Case for Using Robots in Intelligence Analysis, *Studies in Intelligence* 59, no. 4 (December 2015).

## The Enduring Importance of the Humanities in the Work of Intelligence

Andrew Skitt Gilmour

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***Intelligence analysts must increasingly reckon with ideas, histories, languages, and geographical claims dormant in the Cold War but now resurgent. National security needs a humanities comeback.***

These are challenging times for the intelligence profession. The promise of an “end of history” has yielded to new transnational threats, assertive regional and global competitors, and doubts about the ability of the United States to influence the international system it shaped in the last century. Beneath this roiling surface, key states such as China, India, Russia, Turkey, and Iran are working out fundamental political and cultural orientations. They are adopting selectively the West’s culture of science, individualism, and materialism while reviving earlier views of civilization and national identity. Intelligence analysts must increasingly reckon with ideas, histories, languages, and geographical claims dormant in the Cold War but now resurgent. National security needs a humanities comeback.

The humanities are analytic prisms through which US adversaries see their own interests. Shortly after NATO reiterated in June 2021 that “Ukraine would become a member of the Alliance,” Russian President Vladimir Putin replied in detailed historical terms. He not only repeated his claim that Russians and Ukrainians are “one people” but anchored his lengthy personal assessment in the language and religion of the ninth-century Kievan Rus state.

However tendentious some may find Putin’s reading of history, it has defined Russian interests and motivated Russian action in Ukraine. Similarly, the backwaters of Islamic jurisprudence that justify and motivate, for some, acts of extremism are understandable mainly through the study of philosophy, history, and religion in Islamic civilization.

In the wider Middle East, the humanities have returned as a necessary tool for assessing the region’s internal dynamics since the upheavals in governance that began with the US invasion of Iraq. Intelligence efforts on the region have come face to face with a kaleidoscope of competing social groups and identities whose assessment demands more than the contributions of technical collection and data algorithms. Within and beyond the Arab world, the geographic determinants of persistent and ancient political communities, Islam’s fractious intellectual history, Iran’s self-perception as a regional and cultural leader, and Turkey’s enduring pattern of vacillation between Europe and the Middle East are among the strategically relevant issues accessible primarily through the humanities.

Analysts are well prepared—especially because of the intelligence reforms of recent years—to understand and communicate to policymakers the surface forces of a changing world.

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Security threats, weapons capabilities, economic forces, refugees, public opinion, and transnational trends such as cyber, terrorism, and climate change are well suited to data rich collection systems and an improved analytic process that emphasizes logical argumentation and evidence.

Analysts are much less prepared for the civilizational and ideological terrain of the coming era of global competition because the necessary toolkit of the humanities is in eclipse. The physical and social sciences—along with STEM—dominate the academy, students demand money-making degrees, and ideas of critical theory increasingly taint what is left of humanistic learning with the distortions of political power pursuits. The national security risk is that we have an analytic talent pool insufficient for the analytic mission at hand.

An analytic workforce that privileges large datasets, nods to the academy's deconstruction of the content of humanistic learning, and accepts empiricism as the preferred form of knowledge will fail to understand a world whose actors take the content of the humanities more seriously than the United States does. Ideas, values, history, and language are at the core of strategic analysis because these define interests and motivate actions globally. Russia and China insist on the role of civilization in their strategic competition with the United States. Religious identity infuses politics globally. Ancient patterns and precedents echo

in decisionmaking across the Middle East and South Asia.

We have been here before. The development of US strategic intelligence analysis capabilities in the mid-twentieth century was anchored in the humanities. Founding practitioners such as William Langer and Sherman Kent were historians, confident that knowledge of world history, languages, and cultures was essential to the analytic mission supporting US national security. This deference toward the humanities was well suited for the political and ideological competition with the Soviet Union and rested upon a then still dominant position of the humanities in US and European universities.

The waning of humanities in the strategic analytic mission has been decades in the making. First came rapid scientific advances and an academic shift toward the study of economic efficiency and material progress amid the rise of market-oriented neoliberalism. Innovations in intelligence collection that increased the quantity of information to be analyzed further shaped intelligence as an immediate and mostly empirical knowledge mission. The ascendancy of postmodernism within the humanities beginning in the late 1960s also led to an assault on reason and objective truth—the bedrock of the intelligence analysis enterprise. Yet, religion, national identity, historic memory, and struggles over the principles of social compacts are the

global norms which strategic analysis must engage—and a traditional focus of the humanities.

The way CIA thinks about its analytic mission has also mirrored the declining fortunes of the humanities. In the mid-1970s, Director of Central Intelligence William Colby assailed the ivory tower that CIA's Office of National Estimates, led by Kent the historian, had become.<sup>a</sup> Colby created a new model of customer-driven intelligence, establishing national intelligence officers to engage more closely with senior policymakers, yielding some of the formulation of strategic intelligence questions to the immediate needs of consumers. Neoliberalism's market reach into intelligence gathered pace in the mid-1990s with the CIA's rebranding of the president as "the first customer."

The decline of the traditional humanities disciplines is changing the pool of applicants for the intelligence analysis profession, privileging STEM, social science, and physical science degrees. The atomization of knowledge and a bias toward material measures and efficiencies leave potential hires ill-equipped to manage the value and culture questions associated with foreign leaders and their political communities. These actors draw on history, religion, language, and literature in their policies and aspirations. The current preoccupation of many in the humanities with Marxist-inspired ideas, among others, of critical theory is well suited for specialists in the arcane veins of Western thought and those with political programs. Such perspectives, however, offer little that can provide policymakers with objective

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a. John H. Hedley, "The Evolution of Intelligence Analysis." In *Analyzing Intelligence: Origins, Obstacles, and Innovations*, edited by Roger Z. George and James B. Bruce (Georgetown University Press, 2008), 28.

understanding of foreign actors to empower US national security policies.

The AI revolution is bringing the humanities deficit in the IC to a tipping point. Key questions about how expertise in AI, data science, and humanities will collaborate on the vast, increasingly digitized, and diverse corpus of humanistic thinking require urgent and innovative planning. The humanities cannot be taught “on the job” so will need to be understood as a key component of the human capital needed to do strategic analysis. The patterns and precedents of history, philosophy, language, and literature will never offer pinpoint linear predictions of the strategic intent and trajectory of foreign leaders and societies but can give policymakers ways to think more usefully about the range of plausible futures facing US allies and strategic rivals. These patterns can also drive innovative collection and analysis across the IC.

A rebirth of the study of the humanities is needed for national security in order to discern and express the interaction of our values and purposes with those of other peoples. The more traditional humanities

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are fundamentally tied to national security because language, philosophical inquiry, and history have durable and discernible meanings that shape culture and politics globally. Analysts who are skilled in the substantive knowledge of the humanities and have the ability to convert their insights into the strategic analytic mission will be essential.

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***Humanities and Intelligence***

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The humanities constitute the study of human value and meaning in the context of culture and society. *Britannica's* definition of the field includes the “study of all languages and literatures, the arts, history, and philosophy” using methods “derived from an appreciation of human values and of the unique ability of the human spirit to express itself.” During the Renaissance, the humanities defined itself as in contradistinction to the divine knowledge claimed by the medieval church, but today the humanities include the study of religion in human culture and society.

The human experience is central to the field. Knowledge that is beyond the scope of the physical and biological sciences is the purview of the humanities. Particulars, unlike in the scientific method, do not matter for their ability to establish a general law but are worth studying on their own for the human meaning and purpose expressed. The social sciences also focus on human culture and society but differ from the humanities in applying more objective methods of inquiry and analysis.

Such a definition of the humanities has implications for intelligence. Individual leaders, groups, and whole societies subjectively and over time define their interests and culture through language, literature, the arts, history and philosophy and can choose to act according to their particular traditions. The humanities offer no predictive determinism in foreign affairs, but they can aid in assessing the range of an actor's strategic intent and in enhancing intelligence collection.



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