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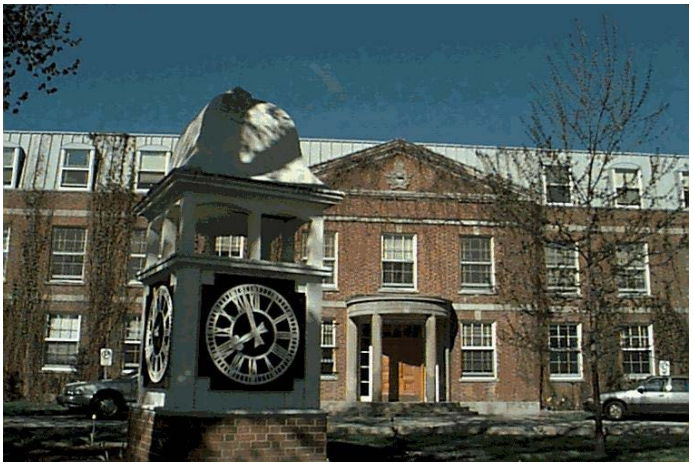

INTELLIGENCE ANALYSIS: FLAWED WITH BIASES

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JCSP 40

Exercise *Solo Flight*

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INTRODUCTION

The Canadian Armed Forces (CAF) Doctrine highlights the importance of analysis within the intelligence cycle in that only by a thorough analytical process can information be transformed into intelligence.[1] The Royal Canadian Air Force (RCAF) doctrine further and informs that in a military context: "information is not enough [and that] it must be processed into knowledge in order to be useful to commanders."[2] This doctrine also advances that only by true understanding and knowledge superiority, can a commander truly leverage the intelligence cycle and position itself for success. It then behooves one to wonder why most of the focus goes toward collection activities such as IMINT, SIGINT and HUMINT.

Analysis is an important part of the intelligence process. As such, only by understanding its main challenges, can one hope to improve the value it provides to the decision makers. This paper posits that though military intelligence analysis faces a plethora of challenges, biases are significant as they are pervasive and cannot be eradicated. Only with a true understanding of the impact of these human cognitive issues on the analyst's judgement can we increase the probability of success. This is important

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[1] Canada. Department of National Defence. B-GJ-005-200-FP-002, *Canadian Forces Joint Publication 2-0 Intelligence* (Ottawa: National Defence, 2011), art 207, 2-2.

[2] Canada. Department of National Defence. B-GA-402-000-FP-001, *Canadian Forces Aerospace Sense Doctrine* (Ottawa: National Defence, 2012), 6.

especially for military as, “understanding how [the analyst] arrive at judgments and decisions can be quite literally a matter of life and death.”[3]

In so doing, the paper firstly highlights the importance of analysis within the intelligence cycle. Secondly, it presents some of the main challenges proposed in the literature while highlighting how most of them relate to, or are in fact, biases. The paper concludes with a discussion on the role of biases in intelligence failure and introduces some mechanisms available to mitigate their impact.

WHY IS ANALYSIS IMPORTANT

Intelligence analysis being “the process of evaluating and transforming data … into descriptions, explanations and judgements for consumers” is definitely central to the intelligence cycle and the generation of knowledge and understanding.[4] Notwithstanding the importance of all the methods for gathering data and information, little value can be provided to decision makers without proper insight. Assessing the validity and reliability of the information while countering deception and minimising error is a complex and critical task that analysts face constantly.[5] Without this portion of the process, information alone will not provide decision makers the knowledge and understanding identified by the aforementioned doctrine.

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[3] Lloyd Jones, "Patterns of Error: Perceptual and Cognitive Bias in Intelligence Analysis and Decision-Making" (Master of Science in Information Operations, Naval Postgraduate School), , 33.

[4] Stéphane Lefebvre, "A Look at Intelligence Analysis," *International Journal of Intelligence and CounterIntelligence* 17, no. 2 (2004), 236.

[5] *Ibid*.

The collection portion of the process is definitively important in providing the required data and information but close cooperation is required with the analysis segment of the cycle to achieve the effect identified in the doctrine. The RCAF has struggled with this specific issue in the recent past with the addition of collection sensors to CP-140 Aurora. Even though it recognised the requirement for an analysis cell of six dedicated personnel to handle the information delivered by the Heron Uninhabited Air Vehicle during the operations in Afghanistan, the same workforce was not identified as part of the new Aurora requirements.[6] Only as an afterthought did the organisation increase the staffing of the analysis cell within the operation centers.

Furthermore, the fact that many of the intelligence failure case studies in the literature identify analysis as the point of failure substantiates the criticality of this portion of the cycle.[7] However, the literature covering successes focussed mainly on the collection mechanism that played a major role and did not cover analysis.

CHALLENGES

Intelligence analysis faces many challenges and the literature does not always agree on which ones are the most critical. This paper presents a subset of these issues by categorizing them as complexity, bias and acceptance.

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[6] National Defence. Canadian Forces Aerospace Warfare Center. D2-290/2011E-PDF, *Project Laminar Strike: Canada's Air Force Post Op Athena* (Ottawa: National Defence, 2011), 52.

[7] Richard K. Betts, "Analysis, War, and Decision: Why Intelligence Failures are Inevitable," *World Politics* 31, no. 01 (1978), 61-89.; Richard J. Heuer, "Limits of Intelligence Analysis," *Orbis* 49, no. 1 (Winter2005, 2005), 75-94.

Complexity

In his book on the topic, Walton suggests some challenges facing analysis, namely uncertainty, surprise, the unknowable future and deception.[8] As a twenty-four year seasoned CIA analyst now adjunct professor of intelligence studies, his views bring together an academic perspective with a practitioner approach, something reported to be lacking in the field.[9] This paper groups these challenges together under the theme of complexity as they are inter-related and are similar to components of a complex system. However, it does not address deception, as this topic deserves a separate treatment due to its intricacy. Though deception is something analysts have to consider with care, it is considered as an external factor influencing the process and the intelligence agencies. It is the enemy's effect on the process. Lefebvre, a former practitioner with the Canadian Department of National Defence and the Canadian Department of Foreign Affairs and International Trade, also discusses the first three items as a group and treats the last separately.[10] Both authors agree that analysts are trained and used to working with inaccurate and uncertain data. However, they also highlight that one cannot completely eradicate these issues and 'weather-man' like assessments will always prevail.

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[8] Timothy Walton, *Challenges in Intelligence Analysis: Lessons from 1300 BCE to the Present*Cambridge University Press, 2010), chap1.

[9] Matthew Crosston, "Occam's Follies: Real and Imagined Biases Facing Intelligence Studies," *Journal of Strategic Security* 6, no. 3 (2013), 40-43.

[10] Lefebvre, *A Look at Intelligence Analysis*, 243-248. P243

As Lefebvre indicates, uncertainty, surprise and the future are all closely interrelated and one affects the other.[11] If one is certain about the present then the likelihood of surprises greatly diminishes. Furthermore, completely accurate forecast of the future would eliminate any chance of surprise. The inter-linkage of these factors is further highlighted by Walton's own use of the lack of knowledge of "when an enemy will strike" as an example of uncertainty of the future as well as in his explanation of surprise.[12] That said, Dr. Hendrickson, an assistant professor of information analysis and director of the Institute for National Security Analysis, suggests that "data and information will never be complete and 100% accurate", and that only by a thorough critical analysis process can these issues be addressed.[13] He further indicates that the basis of the issues with processing this uncertainty rest with cognitive challenges or biases.

The possibility of surprise is something also often found in complex system theory.[14] The fact that trends give an idea of what is next to come but that one cannot assure that the next iteration will fall within an exclusive range of options is something the analyst has to grapple with constantly. 9/11 and Pearl Harbour are often used as prime

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[11] *Ibid*., 243-248.

[12] Walton, *Challenges in Intelligence Analysis: Lessons from 1300 BCE to the Present*, chap1.

[13] Noel Hendrickson, "Critical Thinking in Intelligence Analysis," *International Journal of Intelligence and Counterintelligence* 21, no. 4 (2008), 680.

[14] Reuben R. McDaniel and Dean J. Driebe, *Uncertainty and Surprise in Complex Systems: Questions on Working with the Unexpected*(Springer, 2005), 31.

examples of such discontinuity.[15] The issue with trends leading to surprises relates closely to the pattern bias which will be discusses shortly.

Biases

Even though Walton does not address biases at length, a survey of the literature suggests that human cognition is one of the major challenges facing analysts.[16] Mr. Heuer, an expert in the field and retired CIA officer, suggests intelligence analysts are plagued with multiple cognitive traps or "mental errors caused by our simplified information processing strategies."[17] George and Bruce, veterans CIA analysts and researchers in the domain, echo the relevance of biases to the analysis community at multiple occasions within their work on the origin, obstacles and innovations of intelligence.[18] Heuer draws from the field of psychology to highlight personal biases, which he claims has particular influence on intelligence analysis. He states that "like optical illusions, cognitive biases remain compelling even after we become aware of them" and are virtually unavoidable.[19] Though Lefebvre does not center his discussion on

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[15] Erick J. Dahl, *Intelligence and Surprise Attack: Failure and Successes from Pearl Harbor to 9/11 and Beyond* (Washington, DC: Georgetown University Press, 2013), 77.

[16] Hendrickson, *Critical Thinking in Intelligence Analysis*, 679-693; Heuer, *Limits of Intelligence Analysis*, 75-94; Betts, *Analysis, War, and Decision: Why Intelligence Failures are Inevitable*, 61-89; Roger Z. George and James B. Bruce, *Analyzing Intelligence: Origins, Obstacles, and Innovations*Georgetown University Press, 2008).

[17] Richard J. Heuer, *Psychology of Intelligence Analysis*Centre for the Studies of Intelligence, (1999), chap 9. https://www.cia.gov/library/center-for-the-study-of-intelligence/csi-publications/books-and-monographs/psychology-of-intelligence-analysis. Accessed 20 January 2014.

[18] George and Bruce, *Analyzing Intelligence: Origins, Obstacles, and Innovations*

[19] Heuer, *Psychology of Intelligence Analysis*, chap 13.

the human cognition, he does point to biases as being a significant issue with analysts, which need to "maintain objectivity" and "deliver unbiased estimates."[20]

The hardest bias to eliminate, in Heuer's opinion, is hindsight or the 'I knew it all along effect'.[21] The tendency to overestimate the accuracy of information and past decisions is something that analysts consistently have to deal with. Both when using past judgments and situations as a baseline when making projections and estimates as well as when using current information to analyse a decision made in the past. Heuer goes further to discuss how this pitfall is almost unavoidable as "there is virtually no way to accurately reconstruct the pre-existing mental set. Once the bell has rung, it cannot be unrung."[22] This issue does not only plague the process of analysis, but also how the populace views the process once events occur, as such this problem is pervasive throughout the clients, critics and professionals of intelligence. In his Master of Information Science dissertation, Major Jones discusses how it is easy to find mistakes in judgments once new information becomes available and how this can contribute to the constant image of failure painted on intelligence communities since 9/11, and in particular in the case of the weapons of mass destructions, or lack thereof, in Iraq.[23]

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[20] Lefebvre, *A Look at Intelligence Analysis*, 243-248. p243
[21] Heuer, *Psychology of Intelligence Analysis*, chap 13.
[22] *Ibid*.
[23] Jones, *Patterns of Error: Perceptual and Cognitive Bias in Intelligence Analysis and Decision-Making*, 47.

Though Walton's assessment focuses on the complexity items previously discussed, he does mention hindsight as one of the difficulties analysts have to face.[24]

Heuer also discusses the significant impact of what Walton refers to as pattern bias. This pitfall, identified earlier as playing a major role in surprises, is significant to intelligence analysis due to the inherent tendency for humans to look for causal relationships even if they do not exist.[25] It is critical for analysts to identify the root cause of events but also important to avoid linking random events together. The latter could evidently have catastrophic impact on the decision makers and can generate major surprises. The human tendency to place more value on confirming information further exacerbates the problem. Wahlert, an adjunct professor in national security policy, supports this view and further identifies that thirty-seven percent of the crisis he studied showed a disregard for non-supporting alternatives.[26]

Mirror-imaging is another unavoidable cognitive trap identified in Heuer's seminal work.[27] Walton and Lefebvre also agree on it to be an important problem facing analysts.[28] This issue arises when one creates assumptions based on its own belief and moral system not necessarily in line with the target of the analysis. Heuer explains this dilemma as such: "to see the options faced by foreign leaders as these leaders see them,

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[24] Walton, *Challenges in Intelligence Analysis: Lessons from 1300 BCE to the Present*, 6.
[25] Heuer, *Psychology of Intelligence Analysis*, 129.
[26] Matthew H. Wahlert, "The "Motivated Bias" Dilemma in Warfare and Intelligence," *Defense & Security Analysis* 28, no. 3 (2012), 248.
[27] Heuer, *Limits of Intelligence Analysis*, 33.
[28] Lefebvre, *A Look at Intelligence Analysis*, 233.; Walton, *Challenges in Intelligence Analysis: Lessons from 1300 BCE to the Present*, 6.

one must understand their values and assumptions and even their misperceptions and misunderstandings."[29] A well-published author, scholar and practitioner, Lowenthall provides a striking example of the mirror-imaging syndrome in the Cuban missile crisis where the fact that the United-States would never consider delegating nuclear release authority locally seemed to have played a role in the assessment that the same rigid structure was applied to the Cuban situation.[30] Wahlert also discusses the effect of mirror-imaging, while referring to it as motivated bias, in the Cuban case. But he further discusses how this bias played a significant role in most major failures, from both countries perspectives, in cases such as Pearl Harbor (US-Japan), North Korea (US-China), the Falklands Islands (UK-Argentina) and the Yom Kippur War (Israel-Egypt).[31] The idea of having a multi-cultural task force to try to counter-balance this issue was not discussed in the literature a length but could be worth investigating in the future.

Another major pitfall affecting analysis is the availability rule, by which humans are prone to consider vivid anecdotal data at higher face value than statistically sound inquiry.[32] Walton again agrees with this hypothesis.[33] Heuer provides a good example, which offer a perspective on how the availability rule can correlate with the effect of surprise referred to by Walton. He compares how difficult it was to imagine and forecast the fall of the Soviet Union because a similar event had never occurred in at least fifty

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[29] Heuer, *Psychology of Intelligence Analysis*, chap 12.

[30] Mark M. Lowenthal, "Intelligence Epistemology: Dealing with the Unbelievable," *International Journal of Intelligence and CounterIntelligence* 6, no. 3 (09/01; 2014/02, 1993), 323.

[31] Wahler, 253-256

[32] Heuer, *Psychology of Intelligence Analysis*, 147-149.

[33] Walton, *Challenges in Intelligence Analysis: Lessons from 1300 BCE to the Present*, 6.

years. However, he proposes that the return of Russia to a pure Communist regime is not as difficult because memories of the old system are vivid for most.[34] Wahlert also found the availability rule to play a role in thirty percent of the crises he studied and proposes that: "often, intelligence failure comes from ignoring incoming data that do not support preconceived ideas."[35] Wahler also puts forward an interesting discussion on how the inverse of availability played a role in seventy-nine percent of his case studies in that previously rejected alternatives where not revisited and were taken for granted. Jones provides a recent example of the effect of the availability rule applied to analysts.[36] He discusses how the previous involvement of a specific type of vehicle in the transport of chemical weapons by Iraq in the 1980's was directly correlated with satellite imagery in 2002 to conclude that Iraq was back in the chemical weapons business. He concludes that the "problem is not so much the conclusion, but the lack of detailed and multi-facetted analysis."[37]

Notwithstanding these examples, Heuer proposes that the availability rule does not affect the analyst as much as it does the decision maker in the acceptance of the intelligence presented.[38] He argues that this is mainly due to the sound analytical training of the former.

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[34] Heuer, *Psychology of Intelligence Analysis*, 148.
[35] Wahlert, *The "Motivated Bias" Dilemma in Warfare and Intelligence*, 247-248.
[36] Jones, *Patterns of Error: Perceptual and Cognitive Bias in Intelligence Analysis and Decision-Making*, 37-38.
[37] *Ibid*.
[38] Heuer, *Psychology of Intelligence Analysis*, 149-150.

Acceptance

Even if the analysts overcome the complexities and biases discussed so far, the results from the process require timely distribution to, and acceptance by, the appropriate customers. The acceptance of the knowledge derived by the analysis from the available information remains critical. In short, "decision makers need to be receptive" to the intelligence for the process to be effective.[39] Betts, a well published author on the topic and Director of the Institute of War and Peace Studies, underscore this importance in his conclusion that "the most crucial mistakes have seldom been made by collectors, occasionally by professionals analyst, but most often by the decision makers who consume the products."[40] Thomas, an adjunct professor of intelligence studies and senior officer at the Defense Intelligence Agency, highlights that this issue is even more prevalent with the advent of technology and the desire of senior leaders for precise real-time information versus true intelligence. He goes further to state that "historical record includes cases in which [leaders] discard, misunderstand, or fail to act on prescient and timely military analysis."[41]

A group of Australian researchers also identify the effect of technology on decision makers in discussing how the 'information age' provides a wealth of data, which

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[39] Dahl, *Intelligence and Surprise Attack: Failure and Successes from Pearl Harbor to 9/11 and Beyond*, 184.

[40] Betts, *Analysis, War, and Decision: Why Intelligence Failures are Inevitable*, 61.

[41] George and Bruce, *Analyzing Intelligence: Origins, Obstacles, and Innovations*, 146-147.

was not previously available.[42] They propose the concept of the client as analyst, minimising the perceived value of intelligence products, due to the availability of data at an unprecedented rate. They however fail to differentiate between data or information and knowledge or understanding. As discussed previously, it is not because data or information is available that knowledge and true understanding can be derived without significant amount of effort. Furthermore, such client-analyst would be even more subject to the cognitive traps previously mentioned as they lack the appropriate training and tools.

In his assessment of analysis, Andrew, a historian specializing in intelligence, also discusses the impact of decision maker acceptance. He concludes that each leader will have a different preference concerning the source of the data analysed and will demonstrate a diverse acceptance level of such intelligence.[43] He justifies his position by discussing Rosevelt's preference on spy agencies report when there was seemingly higher accuracy in imagery reports. The main argument to support his position was the good track record of the specific agency. However, we argue this to fall within the availability rule bias previously described, in that the recent record of accomplishment of the source clouds the judgement of the consumer, which favored recent anecdotal information vice more thorough and concrete evidence. Furthermore, Betts indicates that biases affect

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[42] James P. Spillane, Brian J. Reiser and Todd Reimer, "Policy Implementation and Cognition: Reframing and Refocusing Implementation Research," *Review of Educational Research* 72, no. 3 (2002), 57.

[43] Christopher Andrew, "American Presidents and their Intelligence Communities," in *Intelligence Analysis and Assessment*, eds. David A. Charters, Stuart Farson and Glenn P. Hastedt (Portland, OR: Frank Cass, 1996), 111.

different sources in different ways, something not normally taken into account by decision makers. He highlights that "operators have more influence in decision making, but are less capable of unbiased interpretation [while] analysts are more disinterested and usually more objective, but lack influence."[44]

A Canadian study on intelligence capability challenges, conducted by research scientists in conjunction with industry, identified that two of the ten most reported issue categories were related to customer acceptance.[45] The practitioners reported producer-consumer relationship and communication with decision makers to be important issues facing the community writ large. They discuss how cultivating a better understanding of intelligence analysis with the consumer group not only helps the later identify viable requirements but also supports their interpretation of the result, and as such the acceptance of the final product. They also identify the "development of common product templates or reader-guides [to] help consumers to understand [and accept] the reports."[46]

A professor in information systems at the University of Melbourne goes further to propose that "the fixed ideas of commanders-in-chief and their deliberate blindness to uncomfortable facts" often prevents them from accepting intelligence.[47] She posits that "the location of the unit within an organisation" significantly influences the value placed

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[44] Betts, *Analysis, War, and Decision: Why Intelligence Failures are Inevitable*, 67.

[45] B. D. Adams et al., *Capability Challenges in the Human Domain for Intelligence Analysis: Report on Community-Wide Discussions with Canadian Intelligence Professionals* (Toronto, ON: Defence Research and Development Canada,[2012]).

[46] *Ibid*.

[47] Mary Sandow-Quirk, "A Failure of Intelligence," *Prometheus* 20, no. 2 (2002), 142.

on intelligence received by the decision makers.[48] The first statement is quite bold but is somewhat supported by Dahl in his research for intelligence successes. This post-graduate level professor in national security studies and veteran intelligence office highlights the importance of decision-makers to be receptive to intelligence products, while not always blindly accepting it. He argues that this is the only way to not only be warned, but also actively listen to the advices provided by their staff.[49] The blindness to certain fact should be categorised as one of multiple biases: be it mirror-image, availability, hindsight or pattern; depending on the root cause of this sightlessness.

As discussed in this section, most of the real issues being customer's acceptance of intelligence product can be related to some form of bias. But there is one last school of thought on challenges that goes above the ones presented so far and cannot be pitch to bias. Canadian doctrine recognises complexity to be integral to analysis and the intelligence cycle writ large as both joint and RCAF highlight the aforementioned as something analysts need to take into consideration.[50] However, bias and acceptance are not as clearly articulated. Even though these Doctrines infer all the aforementioned as being challenges to be addressed, they do not clearly depict mechanism by which to avoid or mitigate them in the current information age. A group of Australian scholars and practitioners highlight this issue in a recently published study, concluding that

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[48] *Ibid*., 140.

[49] Dahl, *Intelligence and Surprise Attack: Failure and Successes from Pearl Harbor to 9/11 and Beyond*, 184.

[50] Canada. Department of National Defence. B-GJ-005-200-FP-002, *Canadian Forces Joint Publication 2-0 Intelligence*, art 207, 2-2.; Canada. Department of National Defence. B-GA-402-000-FP-001, *Canadian Forces Aerospace Sense Doctrine*, 66

intelligence communities writ large have entrenched in dogma, which can compromise the value provided to decision makers.[51] This study mentions complexity, biases and acceptance as issues important to analysis but surmise that the antiquated doctrine is the root cause of all the issues. A specific study on how the recently reviewed Canadian doctrines address these issues would be a worthwhile endeavour.

BIAS AS CAUSE OF FAILURE

The challenges previously identified are significant, persistent and pervasive. However, they may not be limited to the analysis portion of the intelligence cycle. Walton proposes that for intelligence to succeed "everything … has to go right" and that a single oversight of one of these pitfalls at any point in the process will lead to a failure.[52] That said, this paper showed that the literature points to analysis, and the acceptance of the products, as a significant breaking point and that biases in specific are critical.

To support the importance of analysis in the possibility of intelligence failure, Dahl concludes that surprise will continue to plague analysis indicating that "intelligence failures are largely inevitable [mainly due to] human cognition" or biases.[53] However, he advances that one should not focus solely on the failures, but more on the successes in

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[51] Spillane, Reiser and Reimer, *Policy Implementation and Cognition: Reframing and Refocusing Implementation Research*, 65.

[52] Walton, *Challenges in Intelligence Analysis: Lessons from 1300 BCE to the Present*, 7.

[53] Dahl, *Intelligence and Surprise Attack: Failure and Successes from Pearl Harbor to 9/11 and Beyond*, 14.

order to help prevent future issues. Lefebvre provides an interesting position on the unavoidability of these pitfalls specifically for analysis. He argues that factors outside of the intelligence cycle, such as bureaucratic, interdepartmental communications and incompetent management, act as a catalyst for these analysis dilemmas and further interfere with positive results.[54] Thomas, a senior intelligence officer with the DIA, also touches on the aforementioned but proposes that biases are unavoidable issues.[55] He further identifies that the issues of biases have caused failures in analysis in the past and suggests that it will continue to do so in the future. In the same publication, Bruce and Bennett, veteran and researcher in the field respectively, surmise that biases are the main vulnerabilities targeted by denial and deception. [56] Analysis may be prone to failure but its positive contribution is still relevant. Walton highlights this well in stating that though the "analyst is more likely to get it wrong than right [it is] better than alternatives such as consulting an oracle, trusting fate, or ignoring the problem."[57]

HOW CAN THE ISSUE BE ADDRESSED

Having identified biases within analysis as a significant issue for intelligence, let us discuss what can be done to mitigate the issue. As one of the most prominent expert in the field, Heuer in cooperation with Pherson, provide a collation of techniques that could

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[54] Lefebvre, *A Look at Intelligence Analysis*, 233-235.
[55] George and Bruce, *Analyzing Intelligence: Origins, Obstacles, and Innovations*, 139.
[56] *Ibid*., 127-128.
[57] Walton, *Challenges in Intelligence Analysis: Lessons from 1300 BCE to the Present*, 1.

be used by practitioners to avoid the bias pitfalls.[58] They propose that structured approaches to implement and select analytical techniques for intelligence analysis would help prevent issues such as the ones discussed in this paper. These include Analysis of Competing Hypothesis (ACH), Brainstorming, Cross-Impact Analysis, Network Analysis, Scoring, Mind Maps and much more. Though they do not propose new techniques in this book, notwithstanding their provision of not only a central repository of these techniques but also a method to select which one is most appropriate for certain situations will surely prove valuable in the future. One of the key points to consider is that these techniques can be useful in providing a solid approach to conduct analysis and mitigate biases by their diversity and constant revisiting of assumptions. They do not, however, provide strong mechanism to identify one's own biases and tendencies, the practitioner is assumed to already be cognisant of these factors.

Walton, in his study of the challenges in analysis, offers a subset of the aforementioned methods that can be useful to practitioners.[59] He proposes that certain approached are better suited at addressing each of the elements of complexity. Such as the use of chronological timeline as well as strength-weakness matrices for uncertainty while ACH is classified as better handling surprises. However, he does caveat the fact that these methods are effective at addressing multiple issues and should not be looked at

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[58] Richards J. Heuer and Randolph H. Pherson, *Structured Analytic Techniques for Intelligence Analysis*SAGE, 2010).
[59] Walton, *Challenges in Intelligence Analysis: Lessons from 1300 BCE to the Present*, 9-23.

in silos. Of interest is that, again, biases are not addressed in Walton's section on dealing with these issues.

CONCLUSION

This paper discussed how intelligence analysis faces a multitude of challenges but that biases are more prominent and pervasive. Only with real understanding of a situation can decision makers avoid the multitude of pitfalls that accompany intelligence products. It therefore behooves both the aforementioned and the practitioner to derive proper insight from the data and information gathered via the different collection mechanism in support of this effort. This is not an easy task as analysis faces many challenges such as complexity, bias and acceptance.

The investigation into each of these categories of challenges revealed an underlying theme and relation to biases. Complexity is composed of uncertainty, surprise, the inability to predict the future and deception. We discovered that uncertainty is closely associated to human cognition, or biases in general, and that surprise (which has a high correlation with the unknowable future) is narrowly linked with trends, or pattern biases. The deception component was not described in detail but biases were identified as a prime target for this activity from the enemy's perspective.

This paper did not provide a complete description of all the biases affecting intelligence analysis but focussed on the personal biases most likely to be unavoidable even when one is aware of them. Hindsight plays a major role in shaping one's awareness of a situation but is also an important player in how critics perceive intelligence failures,

as it is always easier to connect the dots after the fact. Finally, mirror-imaging and the availability rules were introduced and they were found to affect the acceptance of analysis products in a significant way.

Biases are inherent to the human condition and as such, it will continue to plague one's opinion and judgment making process. However, this discussion showed that, even though methods exist to mitigate the impact of these biases, the most important thing is for practitioners, and decision-makers alike, to be mindful of these factors.

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