CENTRA Technology, Inc.

Conference Report *February 2020*

Government-Private Sector Analytic Tradecraft Standards

Prepared by CENTRA Technology, Inc.

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CONFERENCE REPORT

GOVERNMENT-PRIVATE SECTOR ANALYTIC TRADECRAFT STANDARDS

Sponsored by ODNI's IC Net Assessments

11 February 2020

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EXECUTIVE SUMMARY

During an 11 February 2020 conference examining analytic tradecraft standards set out by Intelligence Community Directive 203 (ICD 203), experts discussed the ways in which the US intelligence community (IC), the private sector, academia, and FVEY partners implement standards. ***Experts agreed that while there are limited commonalities in the tradecraft practiced amongst the disciplines, ICD 203's underlying concepts apply across public and private sectors.*** Standards are the embodiment of ethics and the foundational elements to producing effective analysis, and ICD 203 is an ethical document detailing what characteristics intelligence analysis should have rather than how to conduct that analysis. Tradecraft, then, is the tactics, techniques, and procedures used to bake that ethic into a tangible outcome.

The IC's value proposition comes down to acting out of national service, avoiding manipulation or political bias, and transparency in its sources and analysis. However, these attributes may no longer serve as compelling selling points as IC customers have access to timely, pertinent, non-IC sources of information. The high quality standards in ICD 203 set apart IC analyses, and the open-mindedness and ideas produced in high-stake private sector environments may help effectively inform the evolution of common standards.

Participating experts asserted that US Government (USG) analytic standards should be able to cover the entire range of IC customers and products. However, they also identified challenges that complicate the implementation of these standards, including:

- Detail-oriented, analytical perfectionism among analysts;
- A belief that standards meant to improve analysis actually hinder critical thinking;
- Management rewarding employees by the quantity—not quality—of published products; and
- The quantity of available data and the evolution of visual products outpacing the rate at which analysts can adapt the standards to meet these new challenges.

Analytic standards for the FVEY community should include core and common competencies while standards for community competencies should be left to individual agencies. Core competencies are universal skills used by all analysts; common competencies encompass traits needed for common, but not all, analysis; and community competencies invoke the niche qualities needed for specific agencies. Elements of the FVEY partnership and private sector intelligence teams are implementing review processes to ensure analytic quality and analysts' continued growth. These processes include annual reviews of previous products using ICD 203 standards and routine peer reviews of analytic products. The universality of ICD 203 standards may also help ease analysts' transitions between the public and private sectors, and there is value in examining how standards can apply across fields and sectors.

Experts asserted that managers could maintain and improve analytical standards and tradecraft practices by seeking more staff members with diverse backgrounds, training, and analytical styles. As tradecraft and the needs of those consuming intelligence evolve, standards should keep pace to remain useful, inclusive, and accessible. ***IC standards must develop to meet the challenges of disinformation, competing analytic judgments of IC elements, and the increasing need to provide foresight amid uncertainty.*** Disinformation may already be changing the concept of evidence. Disinformation and misinformation are produced and consumed by many actors, creating a new technological layer for technology firms and analysts to navigate.

Though it is worthwhile to continue working toward better, more universal standards, ***continual improvements may yield diminishing returns as the sophistication with which a reader consumes a product may fall short of the effort behind its creation***. The IC could mitigate this problem by better educating consumers, which may help the consumers glean more appropriate information from IC products. However, the IC would also benefit from a better understanding of policymakers—IC misunderstanding of customers likely contributes to those customers seeking other sources of intelligence.

Educating customers about IC products may also help the customer and analyst agree on the level of analysis required to answer a policymaker's question. Customers tend to receive better information when they ask carefully-crafted questions and give analysts nuanced taskings. Intelligence products, particularly those requiring data science, can come in different forms to meet the interest level and budget of the customer, ranging from reviews of available sources to deep data analyses. Regardless of the level of analysis, ***analysts create more compelling products when they show how and why they came to a particular conclusion***, rather than simply listing the conclusion with minimal analytical rationale.

Experts noted that intelligence and data analysis technology needs programing and maintenance to meet the standards—machine learning could facilitate this work. However, analysts will still need to determine appropriate machine and human taskings to ensure each handles the appropriate questions—simply having data does not mean that data can be turned into useful analysis. Customers expect that analysts have read and understand all available information, even if an analyst is physically incapable of doing so due to the sheer quantity of information available. Analysts will thus need to communicate the limitations of big data and artificial intelligence (AI) to managers and customers. Analysts also fear losing data in AI or machine learning processes, thus harming the transparency and reputability of their analysis—analysts need to maintain the data in order to break down the analysis and explain it to customers.

CONFERENCE PROCEEDINGS

11 February 2020

KEYNOTE ADDRESS

Neil Wiley, NIC Chairman

The US Intelligence Community (IC) does not derive its value from being smarter than others or from information exclusivity—more information is now publicly available than was the case 40 years ago. The private sector can now conduct tasks that used to be confined to military intelligence operations. Instead, ***the IC's value proposition comes down to three elements—national service, impartiality, and analytic transparency. Each of these elements gives US decisionmakers confidence in the IC's analytic process in order to act on IC assessments***.

- The IC is motivated by its national allegiance rather than personal gain or profit.

- The IC is outcome agnostic, striving to inform decisionmaking rather than manipulate the decision. IC analysts care about world events, but their goal is to provide assessments that help policymakers make informed decisions.

- IC analyses are transparent, disclosing the material used to inform assessments and indicating where those assessments fall short. ***The IC does not expect trust without context—***rather its rationale for, and confidence in, its judgements are clear.

Analytic standards embody IC ethics while tradecraft is the tactics, techniques, and procedures used in the profession to incorporate those ethics into tangible outcomes. Tradecraft is how the IC represents confidence, uncertainty, and transparency. Tradecraft should evolve as new information becomes available, but the underlying ethics should remain constant. As such, Intelligence Community Directive 203 (ICD 203) is an ethical document that lays out what characteristics analysis should have rather than how to do intelligence analysis.

PANEL I – US AND FVEY ANALYTIC TRADECRAFT STANDARDS

Nathan Evans, Australian Office of National Intelligence

Australia's Office of National Intelligence (ONI) began coordinating and evaluating the Australian intelligence community in the early 2000s and encouraged agencies to coalesce around national intelligence priorities. In 2017, the ONI's mission expanded with a mandate to institute an enterprise management approach that would standardize data, science and technology, and workforce utilization across Australian intelligence. The ONI seeks to develop common competencies and standards within the Australian intelligence community, and other agencies are currently reviewing their own analytic tradecraft standards.

The ONI examines core, common, and community competencies in developing tradecraft standards. ***National intelligence standards should always include the core and common competencies, but each agency should develop its own standards for community competencies.*** Core competencies are the skills essential to every analyst; common competencies, such as language or data analysis skills, are shared among most agencies; and community competencies, such as unique languages or operational skills, may only apply to specific agencies. The ONI has adopted much of the Office of the Director of National Intelligence (ODNI) framework, but has fine-tuned the language to fit its unique context and inculcates new hires with this framework.

The ONI prides itself on its biannual Key Judgments Review, which applies to the products rather than to the analyst.

- The review examines whether judgments are still valid after a year, how the briefing made an impact, and if there were any surprises in the analysis. It requires analytic branches to annotate how they met core standards in their analyses from the year prior, forcing analytic branches to evaluate their own work and take ownership of the products.

- After the branches conduct their reviews, they defend their assessment to a senior manager and the ONI tradecraft team. Reviewers then send recommendations for process changes and analytic content to the deputy head of the office.

- The ONI also plans to have analysts explore how new information may have affected previous assessments had it been available earlier. An oversight body initiates key judgment reviews to ensure diligence and continuous improvement.

- However, the lengthy review process keeps analysts from creating new products and forces them to focus heavily on key judgments to the point that analysts may believe key judgements are a product's only important element.

Commonalities in tradecraft across national intelligence agencies are limited. For example, Australian intelligence is often less prescriptive than is the US IC and may not be able to implement prescriptive approaches. Additionally, ***there may be diminishing returns to continually improving tradecraft—the sophistication with which a customer consumes a product may not match the effort put into the analysis, suggesting that the IC may find value in educating customers about intelligence tradecraft***.

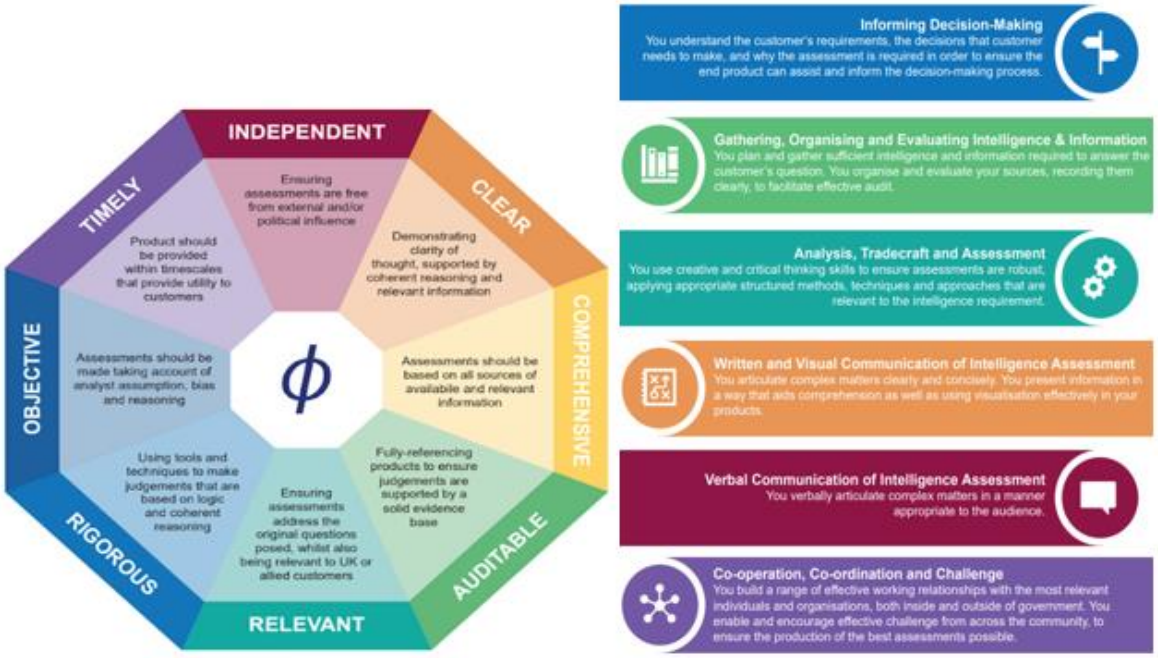
Phillip Gregory, UK Intelligence Assessment Academy

The UK's Professional Head of Intelligence Assessment (PHIA) originated pursuant to the 2004 Butler Report, which examined the intelligence leading to the 2003 invasion of Iraq. While the United States and Australia developed legislation dictating oversight of analysis, the UK has only one paragraph that defines its objectives and modus operandi:

> "The Government has decided to establish a post of Professional Head of Intelligence Analysis, to advise in the security, defense, and foreign affairs fields on gaps and duplication in analyst capabilities, on recruitment of analysts, on their career structures and on interchange within and beyond Government; to advise on analytical methodology across the intelligence community; and to develop more substantial training than hitherto on a cross-Government basis for all analysts working in these fields."

The UK later developed PHIA 2.0 to focus on building its intelligence community, better utilizing resources, and increasing analytical rigor. By 2018, the PHIA established Common Analytical Standards agreed upon by the Assessment Community, which includes a dozen organizations and roughly 1,200 all-source analysts. The PHIA also chairs Product Evaluation Boards—made up of leaders and senior analysts from across the Assessment Community—which provide individual and institutional feedback on a product's adherence to analytical standards. The UK's Professional Development Framework—detailed in Figure 1 alongside its underlying standards—codified the skills necessary for all-source analysts and assessment.

Figure 1



Source: Phillip Gregory's Presentation at the Government-Private Sector Analytic Tradecraft Standards Conference on 11 February 2020

The UK National Intelligence Assessment Academy opened in October 2019 to provide standards and framework training and education to analysts. The Academy will use an interim training facility and suite of courses to act as a single standard-setting hub to train civilian, government, and all-source analysts. This training will also provide a more structured career pathway for analysts, enabling those trained to a common standard to easily move between intelligence agencies.

Detail-oriented, analytical perfectionism that is common among analysts may impede shared FVEY standards. It may also be challenging to ensure that the standards are embedded within the community and for FVEY standards to adapt as intelligence analysis evolves. PHIA will be responsible for maintaining consistency between national and FVEY standards and proving the value proposition for its standard recommendations.

The diversity across the FVEY IC complicates the development of standards, but the PHIA hopes to encourage UK agency participation by including UK intelligence agencies throughout the standard-setting process. The PHIA encourages individual agencies to build on existing standards to address the unique aspects of their own work and attempts a cross-agency approach to improve standards. The PHIA is confident that its standards address the breadth of UK intelligence work and strives to ensure that the standards continue to be applicable.

Jim Marchio, National Intelligence University

In 1976, then-CIA Director George HW Bush promulgated analytic standards that would serve as the foundation for ICD 203's standards. However, it was not until 2006 that the US Government (USG) instituted a program to rate standards and developed criteria to determine their usefulness. The IC established four standards under legal processes and four others through other avenues. The USG approved ICD 203's standards in June 2007 as a tool to help improve the quality of analysis.

As part of the 2006 program, evaluators determined the elements of tradecraft that would help analysts create the best products. They implemented a three-pronged approach:

- *Evaluate products*. Evaluators spent over a decade looking through hundreds of community products to determine scores and comments to inform their analysis.

- *Examine survey results*. The analytic objectivity process survey has continued since 2007; the survey analyzes the important processes that analysts experience.

- *Determine the value and relevance to consumers*. The Office of Analytic Integrity and Standards interviews senior IC consumers to assess the quality of analysis.

Standards meant to improve the quality of analysis may instead hinder critical thinking skills. There is disagreement within the IC about transparency levels, including how much to disclose about a product's analytical work and whether products should include source summary sections. The IC fears that intermittent emphasis on analytical standards may have made them into a box-checking exercise instead of being an effective analytical guide.

Additional Points Raised During Discussion

- Products generated on tablets or other such technology may require different processes than written products, though they still need to maintain common analytical standards. ICD 203's Standard #9 came about in 2014 as then-President Obama began to receive his

intelligence briefings on an iPad—the IC will continually need to adapt standards for the digitization and visualization of its products.

- The Australian delegation noted that their final written products do not necessarily show all the background work, but the process behind the analysis and the digital material is available and auditable for years. The UK delegation also publishes its digital materials in hard copy form.

- Organizations within the USG are looking at how artificial intelligence (AI) may enable analysts to spend more time on analytical work. However, analysts will need to be able to break down an analysis—particularly as it relates to AI and data science—and explain it to the customer, which may require intimate knowledge of an AI's algorithms.

- While Australian and UK standards are similar to the USG's, they are reluctant to call them "US Standards." High-level standards are largely universal, even in private sector analysis, but do not verbatim follow ICD 203.

- Analysts often lack a sense of ownership over the products they publish or do not feel responsible for a product's dissemination, resulting in analysis produced without a clear sense of the customer. Without an understanding of who the client is or how customers use products, neither the analyst nor the product can be properly evaluated.

- ***Analytic managers often reward employees for the quantity—not quality—of products published.*** A strong executive review board is important when evaluating the value of a product; measuring a product's efficacy is still nascent. For example, Canada has trained managers for the past five years to evaluate quantitative and qualitative measures to determine how well analytical mechanisms work.

- ***Senior IC officials could benefit from a better understanding of policymakers.*** Intelligence products are more compelling when analysts show how and why they came to a conclusion rather than just conveying the conclusion without the analytical rationale. IC misunderstanding of customers likely contributes to those customers seeking other sources of intelligence.

PANEL II – ACADEMIC AND BUSINESS ANALYTIC TRADECRAFT STANDARDS

Steve Marrin, James Madison University

The goal of intelligence is to create and disseminate knowledge, whereas academia's goal is to research and understand information as well as teach students. For academia, students are the product and standards serve to increase students' capabilities. This process entails designing challenges to help students learn, handle ambiguity, and challenge the information they receive. Most students in the Intelligence Analysis Program at James Madison University (JMU) become analysts in the public or private sectors, with approximately 20 percent joining the IC.

JMU conducts its courses as educational rather than occupational training programs—education emphasizes knowledge and understanding rather than skills or proficiency. JMU's program teaches students to evaluate the main claim, purpose, and argument of a document. It also emphasizes gathering and analyzing information from a wide variety of sources; instructors introduce students to many different sources of information and attempt to remove political biases from student analyses to keep analysis consistent with available data. Students use the CRAAP test—Currency, Relevancy, Authority, Accuracy, and Purpose—to evaluate the quality of information they encounter and determine whether the source seeks to inform or persuade the consumer. If it is persuasive, students also establish how the information aims to persuade.

The program covers ICD 203 and the challenges it poses. As part of the curriculum, educators use structured analytic techniques and assign readings to challenge the utility of the standards. Students learn to use the words of estimative probability, then challenge their use. They learn that the IC values objectivity, even though objectivity as the absence of bias is unattainable. With that in mind, students challenge the premise of objectivity and question why the IC uses it as a standard if it is unachievable. ***By reasoning through why the standards exist, students are able to develop critical thinking skills and understand the processes that will enable them to have a career in intelligence.***

Frederic Lemieux, Georgetown University

Georgetown University's Applied Intelligence Program aims to professionalize the intelligence workforce by training graduate students. The program explores the overlapping approaches and analytic standards used by the IC and academia. The program seeks to ease student transition into the intelligence field by examining intelligence products and analytical standards that apply to national security, homeland security, law enforcement, and business customers.

The program is comprised of IC leaders and professionals who teach students—many of whom are already analysts—how ethical products are developed and delivered. Program faculty challenge the students' cognitive biases through structured analytic techniques applied to scenarios and simulations, which teaches structured analytic techniques as well as technical and information literacy. Students also get an opportunity to collaborate with IC professionals and better understand how to use relevant technology. Assignments attempt to emulate IC work—students verify sources and apply principles and standards to their work. A peer review process puts students in the role of the consumer and uses grading rubrics that include analytic standards to evaluate products. The program is also pursuing the Red Cell, a new initiative that funnels topics from clients in academia or the IC to students.

Angela Lewis, The Walt Disney Company

Disney's Global Intelligence and Threat Analysis team is responsible for examining how global events may affect Disney's various interests. Disney has tourists traveling the world daily, offices thinking strategically about where to place the next park, and employees determining

where to do ground tours. National Geographic oversees global productions with its photojournalist stories, and ABC News frequently travels to conflict zones.

Consumers tend to receive better information when they ask clear and specific questions. Decisionmakers care more about their business' bottom line than alternative analyses, so Disney's team prioritizes giving risk mitigation considerations rather than yes or no answers to questions. The team comprises only six analysts of varying expertise and experience focusing on specific geographic regions and lines of business while all adhering to the same standards. For example, the Latin America analyst also works on ESPN—if ESPN travels to Europe, this analyst will work with the Europe analyst to ensure the product benefits from both regional expertise and understanding of the customer. The team evaluates its products in three ways:

- All products are peer viewed, with the team challenging analyst assumptions.
- All products need to be timely and relevant; the team develops products in as little as four hours or as many as seven days.
- The team measures success by determining whether they answered a question concisely and provided the customer with the information needed to make an informed decision.

When the team works with outside vendors' products, it consistently evaluates process transparency—the team needs to be confident in the rigor behind a vendor's analysis. There is not always time to conduct due diligence on the product or compare it with open source information and other vendors. Instead, team members coordinate with professional networks to inform their analysis. For example, they reached out to their networks in the midst of recent protests in Egypt and used the disparate pieces of information they received to determine whether the protests would alter Disney's business assessment.

Randy Pherson, Pherson Associates

Analysts could benefit from examining how private sector and IC analytical standards can apply across fields, as those standards are foundational to producing effective analysis. Globalytica—a firm that specializes in developing analytic processes and standards for businesses and organizations—aims to make standards a natural process for analysts. Its clients have included a global bank, a global cyber security firm, the International Red Cross, a major oil company, a global immigration law firm, and the Virginia State Police's Virginia Fusion Center. Despite diverse commercial backgrounds, Globalytica found that companies accepted 80 to 90 percent of the baseline standards it proposed as-is across the various analytical environments; companies only needed to make minor modifications to the analytical standards to best suit their needs.

In one instance, Globalytica worked with analysts from financial intelligence units to develop a banking-specific version of ICD 203. They settled on a list of 14 standards based on ODNI standards, adding one unique standard, dropping one ODNI standard, and amending six existing standards.

- Bank analysts added that analysis should only be included if it adds to the bottom line, deemed the standard on consistency of analysis unnecessary, changed a standard on political considerations to discuss business pressures, and emphasized using valid data and vetted sources while noting that sometimes data is unavailable.

- Despite large internal databases, many bank analysts do not use them due to a lack of time. Bank analysts also realize the importance of conducting alternative analyses—banks could damage their bottom line if they assume all suspicious activity is nefarious.

The value of standards is in gaining a higher quality product that is rigorous and defensible. Intelligence is more impactful when analysts work closely with the customer—in-person briefings and one-on-one conversations are often more effective than written products alone. Globalytica developed a list of generic or cross-functional "characteristics of quality analysis" by comparing the ODNI standards to both the Critical Thinker's Checklist and the Five Habits of the Master Thinker. These characteristics focus on decisionmaker needs, timeliness, actionability, mitigation of cognitive biases, consideration of alternative explanations, logical argumentation, use of credible sources, and maintaining independence from political or bureaucratic pressures.

Additional Points Raised During Discussion

- The private intelligence industry is comparable in size to the IC. It hires the best young people and develops its own toolkits of techniques, skills, and standards based on commercial pressures. ***The open-mindedness of consulting firms and the ideas produced in these high-stake environments may help inform standards. However, consulting companies' responsibilities typically end after delivering a product.***

- The public and private sectors suffer from a prevalent fallacy that simply using the correct mixture of data will provide the desired answers. However, effective use of data and AI will require appropriate tasking for human analysts, AI, and human-machine teams, as each are best suited for different types of tasks.

- Across the intelligence analysis spectrum, it is important to create space to examine possible future challenges. Academia provides a safe mechanism for examining future threats, even if students are not in direct contact with the customer. The private sector also attempts to identify potential future obstacles.

- University courses use progressive assessments that ask students to go through several drafts of a product in order to identify critical information and remove emotional investment from the product. However, academic programs do not often develop new content—for example, JMU and Georgetown have not developed courses on information collection or the role of disinformation and auditory information.

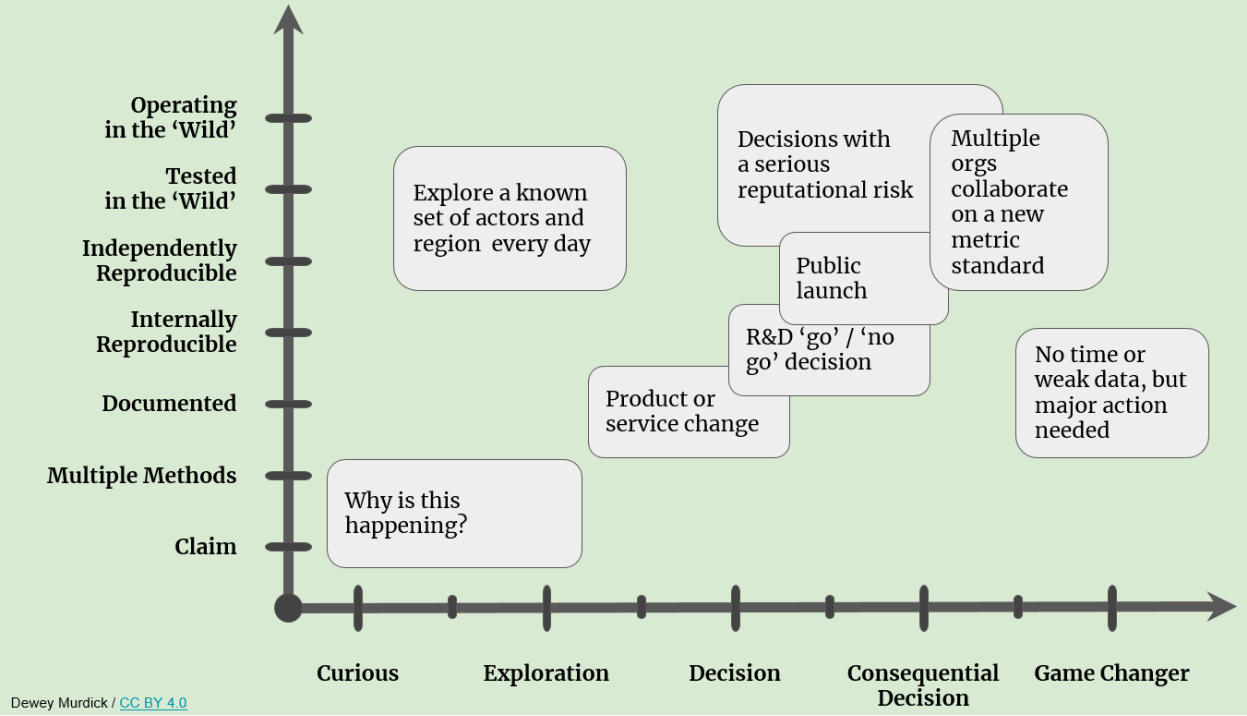
- Intelligence managers would benefit from greater staff diversity, which brings unique perspectives to their team's analysis. Diversity in teaching staff and faculty is also beneficial—diversity in professional backgrounds, gender, and ethnicity can break down cultural boundaries and introduce new perspectives.

PANEL III – BEST PRACTICES AND CHANGING THE PARADIGM FOR GOVERNMENT-PRIVATE SECTOR PARTNERSHIPS

Dewey Murdick, Georgetown University

Intelligence products—particularly those requiring data science—can come in different forms to meet the interest level and budget of the consumer. The X-axis in Figure 2 shows the type of question the customer may ask and the Y-axis shows the methods analysts can use to answer the question. The first point on the X-axis—"curious"—denotes that the customer may not be particularly interested in the answer. Alternately, as shown in the last point on the X-axis—"game changer"—the customer may require the intelligence to make an important decision.

Figure 2



Source: Dewey Murdick's Presentation at the Government-Private Sector Analytic Tradecraft Standards Conference on 11 February 2020

The customer and the analyst need to agree on the question's importance—the customer should be honest about their level of interest and the analyst should be honest about the level of effort required to answer the question. For example, if a tasker asks whether AI-enabled binoculars exist, an analyst may do an extensive patent analysis or a simple Google search to

find the answer based on the tasker's level of interest. Some questions require multiple methods of research and analysis, documentation, internally or independently reproducible data, or different levels of testing for accuracy. The person who bears the consequence for getting an answer wrong should make the daily prioritization decision.

Developing data science infrastructure requires investing time and money in testing, system updates, and supervised training for anyone using the system. Analysts will need to evaluate outcomes of investments in a system's continuous improvement. Data annotation is also required to improve model performance, and improvement requires continuous monitoring and evaluation.

Katherine Pherson, Pherson Associates

Standards should be adaptable to common challenges across the IC, rather than exacerbate agency differences. For example, analyzing state and local law enforcement standards together may reveal commonalities in order to determine the skills required of analysts. ***The Defense Intelligence Agency (DIA) uses criteria that serve as an overarching standard of quality that analysts in other agencies or organizations can practice, share, evaluate, and improve upon.*** The DIA demonstrated the importance of reverse-engineering a solution outlined in a product in order to examine how an analyst came to their conclusion.

Analysts often consider products singular points in time, but analysts should be accountable for change and look for consistency across time and products. This analysis needs to be transparent, traceable, and consistent. Five elements can help foster this transparency:

- *Sharing Methods.* Analysts benefit from seeing how others have followed the analytic process.

- *Imagery*. Analysis would likely benefit from imagery standards—which are currently nonexistent—since imagery can influence a customer's decisionmaking process.

- *Data Analytics*. There are no standards for data analytics, but future standards should set out baseline expectations of what data analytics can do to inform analysis.

- *Artificial Intelligence*. The AI model used for analysis should preserve the data, so as not to inhibit the traceability of analysis.

- *Data Integrity*. Often both the tool and the data are unintentionally lost during big data analysis, rendering the analysis untraceable and unverifiable.

Intelligence analysis can be both an art and a science; identifying how to bring the art and science elements together will be critical for future analyses. Jack Davis, an intelligence educator, defined critical thinking as adapting the processes of scientific inquiry into a world that is not scientific, a mindset that is the basis of structured analytic techniques. Furthermore,

resources are often cyclical as funding levels change annually. Tradecraft funding needs to be sustainable between years, both when it is a priority and when it is not.

Jorhena Thomas, Georgetown University

ICD 203 standards could be made into a universal set of standards to facilitate the ever-increasing movement of intelligence professionals between the public and private sectors. Having a common set of standards that can apply to the IC, fusion centers, the private sector, and academia could enable better coordination between the private sector and government when responding to national security threats. The concepts behind ICD 203 standards apply across sectors, but people apply them differently based on the specific needs of their field, and standards remain voluntary and unenforceable.

With some minor changes, three ICD 203 standards could become more universally applicable:

- *Standard 6(a)*—"Objective: Analysts must perform their functions with objectivity and with awareness of their own assumptions and reasoning. They must employ reasoning techniques and practical mechanisms that reveal and mitigate bias." ***Despite their best efforts, analysts cannot be fully objective.*** A lack of self-awareness and objectivity as well as a reliance on fallacies and unrecognized biases threaten the value of intelligence products. Structured analytic techniques can help filter out biases, but analysts may not always apply them effectively.

- *Standard 6(e)(7)*—"Explains change to or consistency of analytic judgments: Analytic products should state how their major judgments on a topic are consistent with or represent a change from those in previously published analysis, or represent initial coverage of a topic….***Significant differences in analytic judgment, such as between two IC analytic elements, should be fully considered and brought to the attention of customers***." The last sentence should become its own standard.

- *Standard 6(e)(9)*—"Incorporates effective visual information where appropriate: Analytic products should incorporate visual information to clarify an analytic message and to complement or enhance the presentation of data and analysis. In particular, visual presentations should be used when information concepts (e.g., spatial or temporal relationships) can be conveyed better in graphic form (e.g., tables, flow charts, images) than in written text." While this standard provides a good start for including visual information, it should also include hyperlinks and other evolving technologies that are affecting how people obtain and process information.

George Graveson, Office of the Director of National Intelligence (ODNI)

Many private sector firms do not have the flexibility to hire and train large intelligence teams due to limited budgets. Therefore, intelligence staffs need to ensure that company leaders know and appreciate the value of intelligence. Analysts conducting intelligence for corporations can often communicate directly with their customers.

- Commercial recipients are usually more likely to understand intelligence analysis communicated through graphics, especially when conveying quantifiable data.

- While both public and private sector analysts examine risk, it is important to understand that ***corporate conceptions of risk issues may differ greatly from that of national governments***.

- The private intelligence sector developed an industry organization to share information and discuss tradecraft. This organization has a large annual meeting and separate regional meetings throughout the United States to discuss the evolving intelligence profession and use of data in analysis.

Additional Points Raised During Discussion

- ***Machine learning is not dangerous, but needs to be trained, maintained, and implemented appropriately to ensure effectiveness.*** Standards for machine learning would give analysts more confidence in the system and its outputs. Machine learning also requires an objectivity function to drive performance and institute democratic ethics. The main inhibitor to standards developing is time, staff availability, and budget. People use off-the-shelf products because of these limitations, and users often misuse these products due to a lack of understanding.

- AI is based on a developer's ethics—an adversary's AI should be expected to behave similarly to the adversary.

- ***Few standards equip analysts to handle the onslaught of disinformation.*** Facebook and other social networking sites have analysts examining cheap fakes—AV manipulation using cheaper or more accessible software—and false information, but they have no guiding standards to address the issue.

PANEL IV: LOOKING TO THE FUTURE—POLICY AND PRACTICE CHANGES FOR A COMMON SET OF ANALYTIC TRADECRAFT STANDARDS

Dom Baldwin, Australian Attorney General's Office

Intelligence agencies are often keen to facilitate meaningful collaboration despite challenges. They increasingly understand the benefit of engaging with businesses and foreign partners but face security clearance issues—trust and collaboration require open communication that may be difficult to grant those not holding appropriate clearances. Additionally, the clearance process takes time, which hinders the hiring process, and new analysts often leave shortly after receiving their clearance.

Australia's IC is determining how to better collaborate with private sector and academic partners on tradecraft standards. Collaboration can be hard given the need to examine costs and benefits to both parties, and large endeavors in a constrained funding environment may be difficult given costs. The government would need to target its engagement with the private sector.

- ***Customers still expect analysts to read and understand all available information, even if an analyst is physically incapable of doing so.*** Analysts will thus need to communicate to managers and customers the limitations in using big data and AI as well as the expanse of information available to them.

- Developing tradecraft and improving standards should include analysts' input. They may have unique perspectives that those writing standards may not otherwise encounter.

Kim Kinney, ODNI National Intelligence Management Council

ICD 203 is a living document that has changed over time and is broad enough to encapsulate what analysts do. However, ***building the behaviors to support ICD 203 requires IC managers and analysts to incorporate the standards into their analyses from beginning to end.*** IC elements within the USG and FVEY partners coordinate on tradecraft standards by scrutinizing confidence and probability language. By examining differences between agencies, they collectively determined that not everything needs to be standardized as long as there is a common understanding of the terms used.

While FVEY partners were initially skeptical of process and product reviews, they have since agreed to collaborate and participate in key biannual calls to monitor changes and adapt the standards to bring innovation that would not otherwise occur.

Partners noted three areas where they may be able to enhance private sector collaboration:

- *Sourcing*. Analysts need to better understand information sources in order to make better analytical decisions. Data can help evaluate sources by rigorously assigning probability and confidence levels.

- *Product Analysis*. Analysts typically spend too little time evaluating analytic successes to determine why it was a success—most analytic improvements are built on failures.

- *Data*. Productive use of AI and data analytics will depend on a shift in mindset and improved data integrity. Analysts will need to know where the data came from, outline the source, and communicate the data to the customer effectively.

Ruth Webster, UK Joint Intelligence Organisation

Building collaborative intelligence relationships entails appreciating the views and objectives of partners and fostering an environment of mutual respect. Partners may best pursue collaboration where it is easiest, such as joint assessments, and learn from those experiences. Rather than

collaborating on creating new content, agencies could jointly train analysts. ***Improved public-private collaboration usually only requires better communication between the sectors.***

- The UK's IC is attempting to foster collaboration with other sectors through novel outlets, such as the Cosmic Bazaar program that explores forecasting with the research sector. Cosmic Bazaar enables greater diversity of thought and challenges analysts to reexamine priorities. The UK launched a public-private sector open source research program that has identified innovation costs and the need for greater financial support during the innovation process.

- UK intelligence is also innovatively collaborating with the private sector to move recruiting to a single platform across agencies. They are also developing apprenticeship schemes and retention, career pathways, and interactive tools designed to help determine potential career paths as well as exit evaluations to assist with resilience planning.

- Each UK agency moves at a different pace to implement collection and analytical changes. ***The varying paces can hinder collaboration, and partners should find a middle ground and try to keep pace with each other.***

Amy Zalman, Prescient

Foresight increasingly has a role in the intelligence space and explores what has not yet happened and events for which no data exists**.** Foresight analysis examines likelihood, randomness, and emerging trends using the terms "probable," "plausible," and "possible" instead of terms of confidence. Analysts require a new standards framework for anticipatory work.

Foresight analysts may find it helpful to posit how new technology will be used rather than what new technology will emerge. This focus is especially true for intelligence analysts, as it is generally assumed that data analytics, machine learning, and AI produce meaningful analysis. Whether this claim is true will require continual evaluation, likely in the midst of changes to the politics surrounding data and privacy. Regardless, a continued diversification of information sources—many of which are poorly documented—and increased analysis from "black box" sources such as AI and neural networks will make transparency ever more difficult. Questions that rely on true uncertainty—such as the effects of climate change or new technology—will require a combination of evidence and structured forms of imagination.

Disinformation may already be changing the concept of evidence. Disinformation and misinformation are produced and consumed by many actors, creating a new technological layer for technology firms and analysts to navigate. Disinformation is also part of the societal meta-narrative, which influences public behavior. Although more data can be measured today than ever before, contemporary culture is moving away from standardization as a meaningful way to measure the veracity, precision, or desirability of evidence.

Additional Points Raised During Discussion

- ***A perfect set of common analytic standards will always be aspirational.*** Even the scientific method constantly adapts to new contexts.

- Creative thinking should be integrated into standards. Customers often ask analysts counterintuitive questions, and creativity is necessary to work productively at the intersection of technology and different data sources to answer those questions.

- There are thousands of people with impediments to understanding or participating in analysis—often the processes analysts use and the products they publish are not inclusive for those of varied abilities. ***Analysis should be inclusive and accessible to everyone.***

- ***What had previously made the IC valuable may no longer be unique to the IC—customers may look to private sector actors for answers, with little thought for IC tradecraft and rigor.*** Developing an image of the future intelligence environment and the pressures analysts will face could help the IC adapt to this new reality.

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Dr. Frederic Lemieux is Program Director and Professor of Practice at Georgetown University where he leads the Applied Intelligence and Cybersecurity Risk Management Master's programs and recently launched a professional certificate on Blockchain Technology Management. Dr. Lemieux was previously Program Director of the Homeland Security and Cybersecurity Strategy and Information Management Master's programs at The George Washington University. Dr. Lemieux began his academic career at the School of Criminology at the University of Montreal. His areas of expertise include intelligence, cybersecurity, homeland security, and emerging digital technologies. Dr. Lemieux's book *Intelligence and State Surveillance in Modern Societies* (Emerald Publishing Limited, 2018) explores the effects of technology and privatization on intelligence production. He has an M.Sc. and Ph.D. in Criminology from the University of Montreal.

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