

# TIMELY & EFFECTIVE DECISIONS IN COMPLEX ENVIRONMENTS:

## THE IMPACT OF EXCEPTIONAL INFORMATION (PART TWO)

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"No plan of operations extends with any certainty beyond the first encounter with the enemy's main force."[1]

-Helmuth Karl Bernhard Graf von Moltke, the Moltke the Elder, Prussian military leader who served as the Chief of the Prussian General Staff from 1857 to 1888.

### Enhancing Situational Awareness

#### Achieving Situational Awareness Responding to a Surprising Humanitarian Crisis:

Exceptional information improves situational awareness by enabling leaders to understand complex and dynamic environments more effectively. Unlike structured operational exercises, real-world crises often present unanticipated challenges that require immediate adaptation and collaborative solutions. A clear example of this occurred during the Venezuelan refugee crisis in 2018, when LTC Felipe Honorato (co-author of this article) had the opportunity to observe this firsthand as part of a field artillery battalion in Brazil, located in Boa Vista, the capital of the state of Roraima. Faced with the sudden influx of refugees, the Brazilian Army launched *Operation Welcome*. This coordinated effort identified three critical missions: controlling the boundary, providing shelter, and integrating refugees into the country. Exceptional information gathered from rapidly evolving field conditions and high-level political, strategic, operational, and tactical analyses allowed the Army to understand the broader picture and align its efforts with other Brazilian agencies (Fig 5).

CFLCC Level 1 Storylines

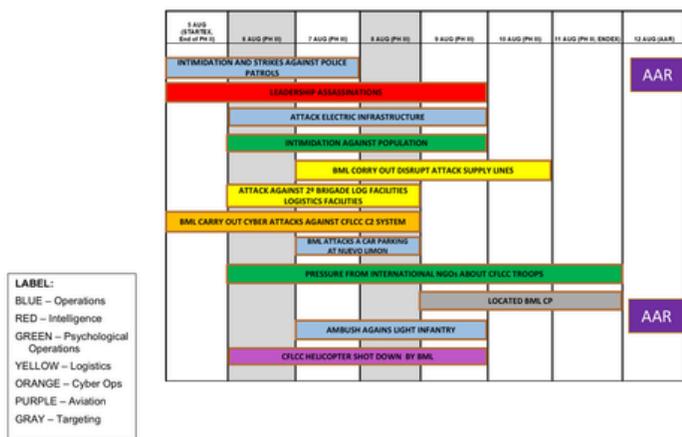


FIGURE 3. THE CFLCC LEVEL 1 STORYLINE THAT WAS USED DURING PANAMAX 22 TO SYNCHRONIZE ACTIONS ACROSS DOMAINS THROUGH THE JMSL. THE TOOL PROVIDED INFORMATION WHICH WAS LATER PICKED UP IN THE AZUVER EXERCISE THAT HELPED THE STUDENTS TURN INSIGHTS INTO DECISIONS IN A JOINT OPERATIONAL ENVIRONMENT. (FIGURE FROM PANAMAX EXERCISE)



FIGURE 4. THE 'ZNN PODCAST' LOGO AS SHOWN IN THE SECOND IMAGE HAS CONTRIBUTED TO THE AZUVER EXERCISE WHERE THE STUDENTS RECEIVED REAL-TIME THREATS AND OPPORTUNITIES ACTIVATING THE INFORMATION DIMENSION. (FIGURE FROM ECEME)



The strategy consisted of the relocation of refugees to several states within Brazil where they could become incorporated into the local community and assist with the development of the nation. Consequently, using quality information to enhance its situational awareness, the Brazilian Army converted a humanitarian crisis into an opportunity to create an avenue for further progress through cooperation.[11]

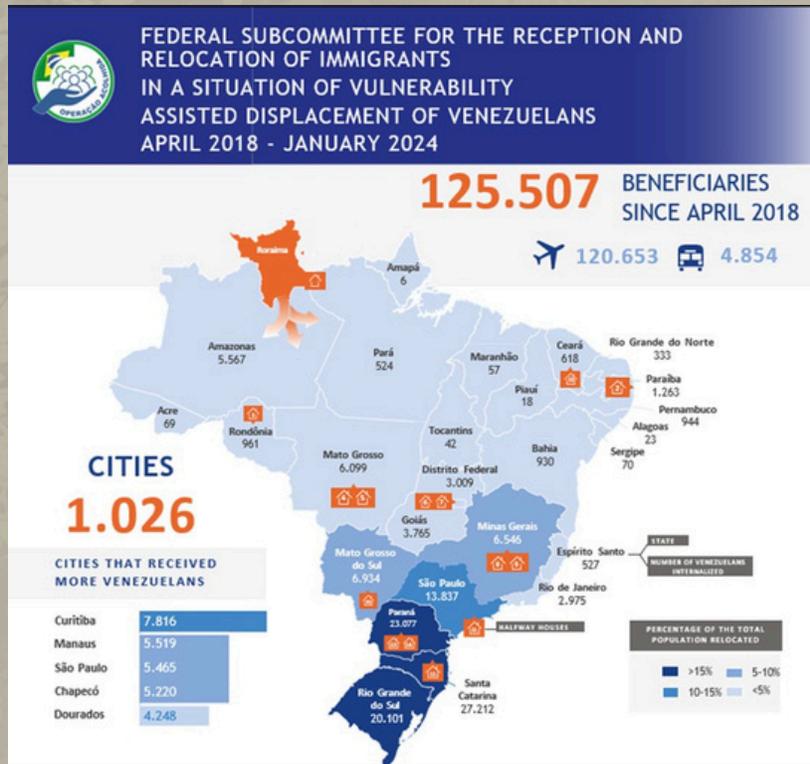


FIGURE 5. BRAZIL'S OPERATION WELCOME, THE RELOCATION OF 125,507 VENEZUELAN REFUGEES ACROSS 1,026 CITIES. EXCEPTIONAL INFORMATION ENHANCED SITUATIONAL AWARENESS, ENABLING EFFECTIVE COORDINATION, SHELTER ALLOCATION, AND INTEGRATION, TURNING A COMPLEX CRISIS INTO A SUCCESSFUL HUMANITARIAN EFFORT. (FIGURE ADAPTED FROM WELCOME OPERATION HQ) [12]

[11] International Organization for Migration. After 5 Years, Brazil Relocation Strategy Benefits Over 100,000 Venezuelans. Retrieved from <https://unofficeny.iom.int/news/after-5-years-brazil-relocation-strategy-benefits-over-100000-venezuelans>.

## **Improving Situational Awareness Anticipating Surprises Using Wargaming:**

Exceptional information improves situational awareness, sharpens the understanding of staff and commanders regarding threats and opportunities, and reduces errors through wargaming. Such a view is crucial for timely situational understanding, which enables greater decision-making effectiveness. War games unite all warfighting function proponents and create synchronized possibilities, helping staffs and commanders anticipate the emergence of exceptional information during the planning process. It lets planners envision the location on a map where capabilities should be and what preparations are required.[13] Thus, proper wargaming uses high-quality information to facilitate improvements in their courses of action and to anticipate the emergence of exceptional information. Enhanced situational awareness enables commanders to better assess readiness. [14] For that reason, wargaming leverages exceptional information that improves the situational awareness of the commander and the staff, allowing fast adaptation of the plan avoiding unpleasant surprises. Therefore, by integrating exceptional information through wargaming, leaders strengthen their situational awareness and improve their ability to adapt plans to dynamic conditions and prevent the enemy inflicting exceptional information upon them. (For more information on employing wargaming in educational settings, see Wargaming the laboratory of military planning, Military Review, April 2024).

## **Improving Situational Awareness Anticipating Surprises Using Technology:**

Operational advanced technologies innovate exceptional information to enhance situational awareness. Advanced U.S. Project Maven is an excellent example. The Department of Defense uses Artificial Intelligence (AI) to analyze thousands of drone and satellite images for threat, pattern, and anomaly detection. By streamlining complicated data analysis, Project Maven helps reduce the effort needed by human analysts on commanders' critical decisions. The software offers real-time intelligence that can be used to change the courses of action and respond rapidly. AI-driven analysis from this system refines the visualization of operational environments, improves planning, and enables timely adjustments to plans.[15]

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[11] International Organization for Migration. After 5 Years, Brazil Relocation Strategy Benefits Over 100,000 Venezuelans. Retrieved from <https://unofficeny.iom.int/news/after-5-years-brazil-relocation-strategy-benefits-over-100000-venezuelans>.

[12] Brazilian Government. Welcome Operations. Accessed on 2<sup>nd</sup> Jan 25: file:///C:/Users/User77/Downloads/informe\_deslocamentos-assistidos-de-venezuelanos\_jan24.pdf.

[13] U.S. Army. Defining Conditions for Success: The Hidden Wargaming Output. 2024.

[14] McConnell, Richard A., Cleber H. B. Simões, Roney Magno de Sousa, and Thiago Caron da Silva. Wargaming, the Laboratory of Military Planning: A Wargaming Collaboration between U.S. and Brazilian Army Command and General Staff Colleges. Military Review Online Exclusive, April 2024. <https://www.armyupress.army.mil/Journals/Military-Review/>

[15] West Point. Maven Podcast. Retrieved from <https://mwi.westpoint.edu/mwi-podcast-the-maven-smart-system-and-the-future-of-military-ai/>.





FIGURE 6. IN CGSC AT FORT LEAVENWORTH AY24, WARGAMING SESSION ILLUSTRATING COLLABORATIVE PLANNING AND SYNCHRONIZATION OF WARFIGHTING FUNCTIONS, GENERATING EXCEPTIONAL INFORMATION. (PHOTO FROM AUTHORS)

This initiative was part of the complex tool kit implemented at the Command and General Staff College (CGSC) during the AY 25 and it inculcates technology options for field grade officers to use in the next 10 years of their careers, involving the use of AI and data literacy skills. [16] This case shows the integration of exceptional information through advanced technologies enhances situational awareness and allows troops to deal with complex scenarios appropriately at the speed of change.

## Developing Creative and Adaptive Responses

### Developing Creative and Adaptive Responses; Adjusting to Surprises During Oral Examinations:

Exceptional information develops creative and adaptive responses, enabling leaders

to address unforeseen challenges effectively.[17] This concept was demonstrated in the X100 Oral Board series at CGSC, a capstone event designed to assess learners across common core knowledge areas in the CGSOC curriculum.[18] During AY 25, we had the unique opportunity to observe this process from both sides: as a former student and as an instructor in the oral board committee. As students, we experienced exceptional information firsthand when we had to respond to unexpected questions during the oral examination. Without prior knowledge of the exact topics, we were required to analyze the posed scenarios in real time and provide coherent, informed answers.

[16] David Norris. Command and General Staff School guidance. 2024/2025..

[17] Fletcher, A. Creativity Field Guide: A Field Guide to Building Your Strategic Core. Independently published, 2021.

[18] AY25 Resident CGSOC Curriculum Material.



Similarly, as an instructor, we faced exceptional information when evaluating students. We did not know in advance about the historical event or national security issue the student would present, requiring us to quickly understand the topic and generate questions related to CGSOC common core disciplines. This process demanded adaptability and the ability to synthesize complex information under time constraints. Exceptional information was consistently present during this exam since the students and the instructors had to operate in dynamic, unanticipated conditions. As a result, the success of the X100 Oral Board highlighted how exceptional information promotes creativity and adaptive responses, connecting theoretical knowledge with practical application and preparing participants to excel in challenging situations. Developing creative and adaptive responses using curriculum innovations in surprising ways: The CGSC C150 Critical and Creative Thinking twelve-hour group of lessons is an example of how the use of exceptional information can enhance creativity and adaptability (C153B: Recognizing Exceptional Information, is a two-hour lesson teaching how to recognize exceptional information).[19] As a result of the C 100 lessons, specifically the foundations and data literacy block, at the start of the CGSOC resident course, the student will have the conditions set to start the course at Fort Leavenworth.[20] It is designed to instill these skills through exercises that encourage out-of-the box thinking and innovativeness. For example, participants were asked to

detect assumptions within their plans and creatively formulate an alternative constraint that contradicts that assumption to come up with a course of action. These exercises help prepare the participants to deal with ambiguity and make sure they can come up with practical solutions when the usual fails. In this way, we see that innovative exercise aiding decision-making in unpredictable environments. Moreover, the program brings attention to outliers, often smoothed over or ignored by modern systems, including statistics and AI, which consider them irrelevant. Although such efficiencies are being experienced during normal times, it may cause catastrophic failures during times of instability, when outliers signal significant changes.[21] By relying on creative methods, the program also demonstrates the way exceptional information gets identified and created in problem-solving. This approach to curriculum delivery shows how exceptional information can encourage creative and adaptive responses, improve decision-making and learning (For more information about the C150 Critical and creative thinking lessons see From research to reality, Military Review, December 2024).

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[19] From Research to Reality: Cultivating VUCA-Resistant Thinking at CGSC. Military Review, 2024.

[20] Jason Ballard, and Mark A. McManigal. AY 24-25 Resident CGSOC Leader Quick Reference Dashboard. CGSC. 2024.

[21] Creativity Field Guide: A Field Guide to Building Your Strategic Core. Independently published, 2021.



## **Developing Surprising Creative and Adaptive Responses in Ukraine:**

Especially in real-world scenarios, exceptional information has shown us how extraordinarily it can facilitate adaptive and innovative responses. One example is the Ukrainian Army's creative utilization of limited resources in dealing with the large-scale military power of Russia. Despite its substantial limitations, Ukraine has successfully embraced Unmanned Aerial Systems (UAS) to improve its effectiveness on the battlefield.[22] In this manner, by modifying commercial drones for military use and establishing decentralized training programs for UAS operators, Ukrainian forces have conducted surveillance, identified enemy locations, and executed accurate strikes. In addition, efforts backed with extraordinary intelligence have increased Ukraine's combat capabilities against the larger enemy. According to the U.S. Army, innovation in drone tactics is a stunning indication of how exceptional information can make solutions possible even with limitations in resources (For more information about the Ukrainians inflicting exceptional information on Russian forces see the intro and conclusion of From research to reality, Military Review, December 2024).

## **Conclusions**

Exceptional information is an essential enabler of timely and adequate decision-making in modern military operations, allowing leaders to act decisively amidst uncertainty. During a live-fire exercise at the National Training Center (NTC),

the Central Corridor case exemplifies how recognizing and creating exceptional information that surprises the enemy can transform potential vulnerabilities into tactical advantages. By repositioning the counter-fire radar in an unconventional location, leaders turned an apparent weakness into a decisive strength, neutralizing an entire regiment of enemy artillery. Similarly, PANAMAX and its integration into Brazil's AZUVER exercise process demonstrate the broad applicability of exceptional information in joint and multinational environments. Tools like the Joint Master Scenario Event List (JMSEL) and innovative communication techniques from PANAMAX were adapted in AZUVER, enabling Brazilian military students to transform fragmented insights into cohesive ideas and synchronized actions. Then, it highlights how seeking emerging opportunities, supported by exceptional information, directly contributes to success while operating through battlefield surprises. Drawing from the varied examples of how exceptional information drives effective decision-making, its role in enhancing situational awareness is significant for understanding complex and dynamic environments that are often filled with surprises. It was particularly evident during the Venezuelan refugee crisis, which started in 2018, when the Brazilian Army, through *Operation Welcome*, addressed an unprecedented humanitarian challenge.

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[22] John M Cantin. Ukrainian Unmanned Aerial System Tactics. 10/08/2024| <https://oe.tradoc.army.mil/2024/10/08/ukrainian-unmanned-aerial-system-tactics/>.



By leveraging exceptional information collected from rapidly changing circumstances conditions and multi-level dimensions analyses, the Army successfully helped coordinate boundary control, provided shelter, and facilitated the integration of refugees into Brazilian states. This cooperative approach, executed with other Brazilian agencies, transformed a potential crisis into an opportunity for stability and progress. Similarly, advanced tools like Project Maven highlight how exceptional information refines the visualization of operational environments, using AI-driven analysis to adapt strategies in real-time. By refining situational awareness through surprising exceptional information, leaders can act in times of need, thereby bridging the gap between uncertainty and outcome in modern military and humanitarian operations. Developing creative and adaptive responses is necessary to address unforeseen challenges as we discover how exceptional information transforms the learning environment. The X100 Oral Board series shows how useful information promotes adaptability from students and faculty equally while at CGSC. Students have atypical information at their disposal when they are faced with unexpected/surprising questions during the oral exams. As such, they must change their mindsets and provide coherent and informed answers. Instructors must learn how to address new topics their students present, which requires understanding the topic quickly and formulating questions about it.

Equally, the CGSC Creativity Training Program structures exercises that can improve cognitive flexibility by adapting to surprising change by challenging assumptions and creating solutions. These examples highlight how exceptional information enables flexibility and relates theory with practice so that leaders can respond to changing and complicated issues quickly and appropriately.

In conclusion, with the increased complexity of war and crises, the lessons from the cases mentioned before underscore the significance of developing opportunity identification, improved situational awareness, and creativity associated with adaptability. As a result, exceptional information helps leaders turn threats into opportunities and stay agile in spite of surprising developments in the operational environment. The ability to recognize exceptional information, whether in the context of a tactical exercise or a real-world crisis, to analyze it and to act on it timely and effectively is an essential tool for decision making to address the uncertainty of war.



## Author Biographies

**LTC Felipe Galvão Franco Honorato, Brazilian Army**, recently served as an instructor at the U.S. Army Command and General Staff College, Fort Leavenworth, during Academic Year 2024–2025. He holds a bachelor's degree from the Brazilian Military Academy and completed the Captain Career Course in both Brazil and France. He was assigned to the security detachment at the Brazilian Embassy in the Democratic Republic of Congo, Africa, for one year. He has also served in armored and jungle field artillery units, air defense artillery, and was an instructor at the Brazilian Army Command and General Staff College. A graduate of the U.S. Army CGSC Class of 2023–2024, he also participated in Joint Exercise PANAMAX 22. Designated to command the 10th Jungle Field Artillery Battalion during the 2026–2027 biennial cycle, LTC Honorato focuses his work on multinational cooperation, doctrinal development, and modern land warfare.

**Richard A. McConnell, DM**, is a retired Army Lieutenant Colonel and a professor in the Department of Army Tactics U.S. Army Command and General Staff College at Fort Leavenworth, Kansas. He served as the principal investigator for the summer 2022 creativity study dedicated to exploring ways to improve creativity among students. The creativity study research report was published in the 2023 Association for Business Simulations and Experiential Learning (ABSEL) Conference proceedings. He received his DM in organizational leadership from the University of Phoenix and has published several articles on wargaming, exceptional information, creativity, and ethics related topics.

**Note:** For more details on exceptional information as plot twists in narrative cognition as instructed at CGSC, see Trent Upton et. al, "From research to reality: Cultivating VUCA resistant thinking at CGSC," Military Review Online Exclusive, <https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/Online-Exclusive/2024/Research-to-Reality/mcconnell-research-to-reality-UA.pdf>. For more information on narrative cognition/story thinking that enables exceptional information recognition, see Tom Gaines, "Stories That Win Wars: The Role of Narrative in Military Planning and Innovation," From the Green Notebook, 2 December 2024, <https://fromthegreennotebook.com/2024/12/02/stories-that-win-war-the-role-of-narrative-in-military-planning-and-innovation/>. For more information on how exceptional information recognition can enable wargaming, see "Wargaming the Laboratory of planning" by McConnell et. al. <https://www.armyupress.army.mil/Journals/Military-Review/Online-Exclusive/2024-OLE/Wargaming-the-Laboratory-of-Military-Planning/>.

