

# STRATEGIES FOR ENHANCING MILITARY LEADERSHIP: A CASE STUDY OF VUCA PRIME IN THE COLOMBIAN AEROSPACE FORCE

**Maribel Silva BARRERA**

Colombian Armed Forces, Colombia

*Contemporary wars illustrate the profound challenges faced by military leaders. The dynamics of warfare have transcended traditional notions of control as the battlefield has become increasingly volatile, uncertain, complex, and ambiguous (VUCA), as noted by the military strategist Carl von Clausewitz, who proclaimed, "war is the realm of uncertainty." Faced with this reality, military organizations are compelled to adapt rapidly to the changing environment. This essay explores the applicability and potential benefits of the VUCA PRIME behavioral leadership model within the Colombian Aerospace Force, with the aim to provide this organization with a tool based on four core elements: "Vision," "Understanding," "Clarity," and "Agility," enabling it to effectively address the challenges faced by her military leaders when they dealing with volatile, uncertain, complex, and ambiguous situations. By examining how these model components can guide decision-making and leadership qualities, this essay aims to underscore the imperative role of the VUCA PRIME model in transforming the approach of the Colombian Aerospace Force towards the complexities of the VUCA environment.*

**Key words:** VUCA phenomenon; VUCA PRIME model; military organizations; leadership, agile organizations; complex systems.

## 1. INTRODUCTION

The acronym VUCA was originally introduced by the United States Army War College between 1986 and 1991 to describe the increasingly volatile, uncertain, complex, and ambiguous global landscape that emerged after the end of the Cold War [1]. Since then, this acronym has evolved into a valuable term for characterizing the daily

scenarios in which individuals and institutions operate, highlighting the challenges they face. In 2007, Robert Johansen introduced the 'VUCA Prime' model in his book *'Get There Early: Sensing the Future to Compete in the Present.'* This model presents four key elements that offer guidance to leaders who grapple with the perpetual dilemma of making decisions too hastily or too belatedly when dealing with

volatile, uncertain, complex, or ambiguous situations. These four elements are: 'volatility' – which corresponds to 'vision,' 'uncertainty' – entailing 'understanding,' 'complexity' – involving 'clarity,' and 'ambiguity' – emphasizing 'agility.' This article seeks to delve into the applicability of the concepts of vision, understanding, clarity, and agility within the Colombian Aerospace Force as it confronts the prevailing VUCA environment.

## **2. VUCA PHENOMENA AND MODEL VUCA PRIME**

In light of the evolving battlefield dynamics where terrorism and guerrilla warfare blurred traditional distinctions, military organizations faced a pressing challenge. They had to adapt swiftly to the new reality of Volatility, Uncertainty, Complexity, and Ambiguity (VUCA). This chapter explores the origins of VUCA and introduces the VUCA PRIME model as a valuable tool to address these challenges.

Long before the term VUCA became widespread in business environments, terrorism and guerrilla warfare were already reshaping the battlefield by acting swiftly and blurring the lines between enemy combatants and uninvolved civilians. This created an urgent need for military organizations to adapt to a new and

complex environment characterized by VUCA, in order to effectively respond and survive in these challenging conditions.

To describe environments with these characteristics, the United States Army War College coined the term VUCA for first time between 1986 and 1991, primarily to help its students, often high-ranking military officers, understand and navigate the turbulence they would encounter as they assumed increasingly strategic leadership positions. But what exactly do the four components of VUCA mean?

Volatility refers to the nature, speed and magnitude of change and consequently to the lack of stability and sudden change of events, Uncertainty, for its part, refers to the low understanding of problems and events, due to insufficient information; which results in a lack of predictability and the prospect of surprise, Complexity refers to chaos, understood as the multiple interconnections of events or the overwhelming amount of information that needs to be processed, and, finally, ambiguity, refers to the lack of understanding, cause and effect are not understood and there are no antecedents to help with decision making [2].

In practice, the four terms— Volatility, Uncertainty, Complexity, and Ambiguity—are intricately intertwined, with the complexity and

volatility of an environment directly impacting the predictability of future events and, consequently, heightening the level of uncertainty. Despite their interconnectedness, these four concepts collectively create a challenging environment that is difficult to understand and control.

To equip leaders with the tools to enface this type of environments, in 2007, Robert Johansen introduced 'VUCA Prime' in his book *'Get There Early: Sensing the Future to Compete in the Present'*. This model, based on in the human experience, reframes the VUCA acronym to emphasize 'Vision,' 'Understanding,' 'Clarity,' and 'Agility' as the antidotes to effectively confront Volatility, Uncertainty, Complexity, and Ambiguity—VUCA environments [3]. By focusing on these key attributes, leaders can better prepare themselves and their organizations to thrive in an ever-changing and unpredictable world.

The VUCA PRIME model is designed to forge a profound connection between leaders and their teams, underpinned by purpose-driven communication. This deep connection fosters a culture in which information flows more freely, enabling decisions and actions to align seamlessly with the overarching objectives of the organization. The synergy between VUCA and VUCA Prime gives rise to a state of productive energy, capable of propelling organizations towards

adaptation, change, and evolution in response to the demands of their organizational environment. By adopting a multi-model approach to transformational change, organizations can better position themselves to thrive in complex and dynamic environments.

### **3. APPLYING VUCA PRIME MODEL IN COLOMBIAN AEROSPACE FORCE**

As we have examined the fundamental concepts of the VUCA PRIME model, it is now essential to shift our focus towards its practical application within the Colombian Aerospace Force. This exploration aims to underline the critical role the VUCA PRIME model can play in addressing the multifaceted and challenging security landscape that Colombia faces today.

The Colombian Aerospace Force serves as the aerial defense branch of the Republic of Colombia, established in 1919 with a fundamental mission outlined in the National Constitution of 1991. Its core responsibilities encompass the exercise and maintenance of control over Colombia's airspace, along with the defense of national sovereignty, territorial integrity, and the Constitutional order.

Today, Colombia faces formidable security challenges on both domestic and international fronts. These challenges stem from factors of instability, including rising rates of

massacres and kidnappings, the alarming expansion of illicit crop cultivation, reaching approximately 230,000 hectares according to a UN report [5], and the influx of Venezuelan migrants due to the neighboring country's complex economic situation and human rights issues. Additionally, a bilateral ceasefire agreement with guerrilla groups, promoted by the Colombian government, further complicates the landscape for the Colombian Military Forces.

Given this complex and multifaceted environment, it is imperative to explore the applicability of the VUCA PRIME model within the Colombian Aerospace Force to effectively address these challenges.

### **3.1. Vision**

In the VUCA PRIME model, Johansen's first proposal involves addressing volatility with 'Vision.' This concept encompasses the notion of creating the future through purposeful action, wherein the words that constitute the vision are translated into actionable routines. Whether at the individual, group, or organizational level, this translation process serves to generate a transformative shock wave of change. In rapidly changing environments, it becomes imperative for individuals and organizations to have a clear sense of direction, even if the outlined path may need to adapt or undergo alterations during the process. Having a vision is as, if not more, crucial than

the ability to make predictions, as it revolves around the act of building the future rather than merely studying it. A well-defined vision enables individuals and organizations to concentrate on what truly matters, allowing them to distinguish priorities amidst the multitude of activities, requests, or opportunities that may arise. A long-term strategic vision not only provides a clear sense of direction but also serves as a guiding force for actions, fostering a heightened sense of engagement and ownership by clarifying the pursued goal and one's contribution to it.

In essence, a bold vision transcends volatility, offering a confident and composed perspective untethered by the constraints of the present. It acts as a beacon guiding decision-makers toward the horizon they seek to shape, rather than being shaped by the assumptions of the current moment.

In the military context, the concept of 'Vision' has a counterpart that can be likened to the 'Desired End State.' Here, military leaders articulate what the future should look like and specify the actions required both now and in the future to attain the desired outcomes [4]. The Colombian Aerospace Force, for instance, unveiled its vision for the year 2042, which states:

*“To exercise dominance in air, space, and cyberspace, the Colombian Aerospace Force will be innovative, multipurpose, interoperable, regional leader and preferential, with global reach and real, permanent, and*

*sustainable deterrent capabilities*” [6].

This vision sets a clear benchmark for what the institution aspires to achieve by 2042 (the Desired Final State) and outlines the necessary steps to reach it. What makes this vision particularly powerful is its ability to inspire individuals to work collectively toward a common goal for the greater good. It represents a shared vision that is understood and embraced by all members of the organization, offering a clear roadmap for achieving the desired goals.

### **3.2. Understanding**

In the VUCA PRIME model, 'Understanding' takes center stage as a means to grapple with uncertainty. Listening and comprehension become paramount when dealing with rapidly changing situations, where the consequences of such changes are often unknown. Effective communication ensures that all parties involved share a common understanding of the situation. Moreover, it plays a pivotal role in fostering trust-based relationships within the organization. In times of crisis, it is this trust, shared interests, and the decision-making competence of the organization's leaders that mobilize people to act cohesively.

Furthermore, 'Understanding' encapsulates the essential qualities leaders must possess, including openness, responsibility, the establishment of clear expectations and objectives, the ability to address

challenging topics, strong listening and interpersonal skills, modeling desired behavior, and having trust in others [3].

Johansen raises it to deal with uncertainty. Listening and understanding are key to discovering new ways of thinking and acting since when a situation changes quickly and the effects that said change can generate are unknown, communication is key to being certain that the interested parties have the same level understanding of the situation. Additionally, it is key to building relationships of trust between people in the organization, so that when a crisis situation occurs, people mobilize based on trust, interests and the decision-making capacity of the organization's leaders. Similarly, 'Understanding' encompasses the essential attributes that leaders must possess, including openness, responsibility, the establishment of clear expectations and objectives, the ability to address difficult topics, strong listening and interpersonal skills, modeling the desired behavior, and trust in others [3].

Now, let's delve into how 'Understanding' in the context of military leadership is essential, drawing from various authors' perspectives. As we explore the military viewpoint on 'Understanding,' it becomes evident that it plays a vital role in guiding the decision-making and leadership qualities expected of military commanders.

In the military context, numerous authors have studied the requirements that military leaders must meet. Clausewitz [7], in his work 'On War,' in Book I - Chapter 3 and in Book II - Chapter 2, emphasized that Commanders must possess innate gifts of intellect and temperament, and these elements must be harmoniously combined. Additionally, they must exhibit enthusiasm and courage in the face of danger to inspire their subordinates. This perspective suggests that qualities required for leadership may not be acquired but rather are innate 'gifts,' as etymologically 'enthusiasm' denotes 'divine inspiration' or 'God within oneself.

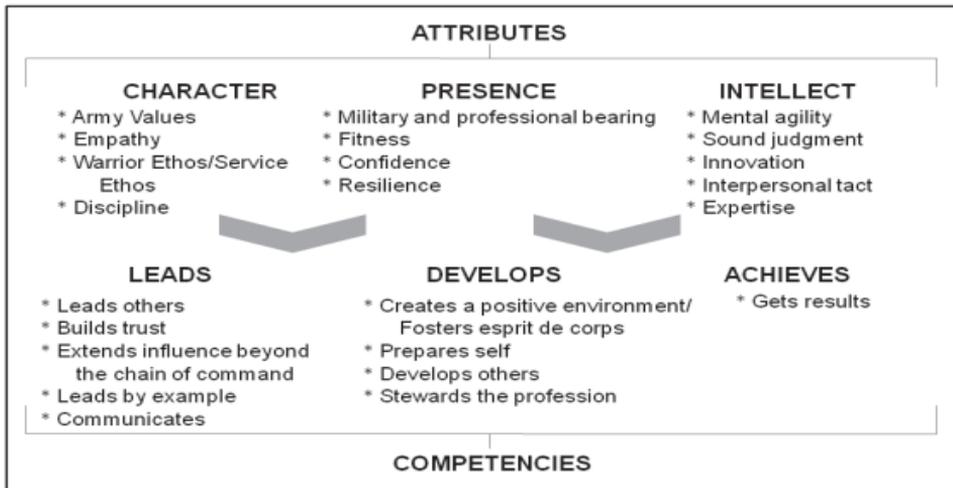
This insight prompts questions about the essence of a Commander and whether the qualities of a leader can be acquired or are innate gifts.

Concerning the first aspect, the United States Air Force defines a leader as 'One who assumes responsibility and is capable of motivating others to accomplish a mission or objective' [8]. In a similar vein, the Colombian Aerospace Force describes a leader as one who inspires and motivates others to fulfill a common mission [9]. These definitions share common elements, notably motivation and the achievement of objectives. Therefore, for the purposes of this essay, a military leader will be understood as an individual responsible for influencing their subordinates,

motivating them to accomplish the mission and achieve the vision.

Regarding the age-old debate of whether leaders are born or made, the literature offers various perspectives. Some, like Ausburn, Lynna & Ausburn, Floyd [10], or Peter Drucker, argue that while there may be a few born leaders, they are too few in number to rely on [11]. Others, such as Browne [12], contend that leaders must be nurtured and developed to acquire the competencies necessary to lead an organization. From these differing viewpoints, it can be deduced that leadership, existing at the intersection of art and science [13], is not an absolute concept. Instead, it allows for nuances and a wide array of attributes, including knowledge, skills, abilities, and other characteristics (KSAOs) that contribute to effective leadership.

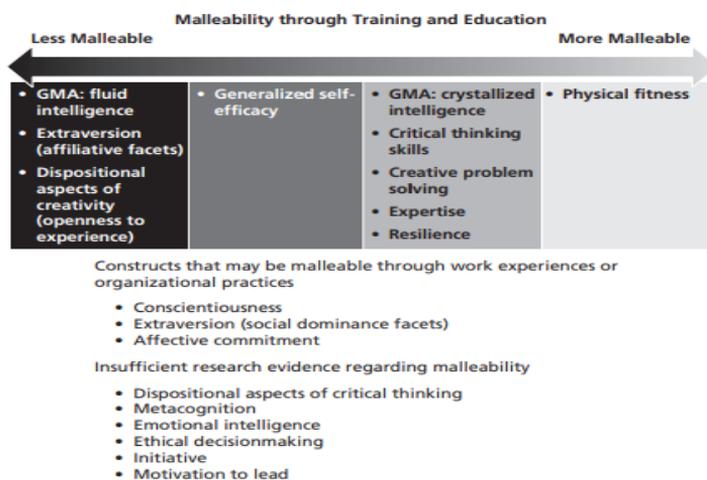
Following an extensive literature review on the essential KSAOs that leaders must possess, it has been established that, within the scope of this essay's focus on the military field, the requirements for leaders in the Colombian Aerospace Force are comprehensively detailed in the model presented by the United States Army, as outlined in the Army Doctrine Reference Publication (ADRP) 6-22, titled 'Army Leadership.' This model sets forth the specific attributes that leaders should embody and the core competencies they must exhibit to effectively meet the challenges inherent to their roles [14]



**Fig. 1** Army Leader Requirements Model (ALRM) [14]

In 2018, the U.S. Army Training and Doctrine Command, Combined Arms Center, commissioned a study from the RAND Corporation. (RAND, a research organization established immediately after World War II, specializes in bridging military planning with research and development decisions). The primary objective of this study was to

determine the extent to which leader characteristics, particularly those associated with attributes outlined in the Army Leader Requirements Model, can be developed through training and education. Additionally, the study aimed to identify effective approaches for measuring these characteristics. The findings from this study are presented in Figure 2.



**Fig. 2** Degree of Malleability of ALRM Constructs [15]

As a result of our analysis, it becomes evident that not all of the essential leadership attributes required by the Colombian Aerospace Force can be cultivated solely through education and training. Therefore, it is imperative to introduce tools and methods in the recruitment process that aid in identifying applicants who already possess these desired leadership characteristics, especially those that are less amenable to change through training and education. This proactive approach in the recruitment phase can help ensure that the organization selects individuals who inherently exhibit the qualities crucial for effective leadership within the Colombian Aerospace Force.

### **3.3. Clarity**

Johansen's approach to managing complexity, 'Clarity,' revolves around creating a competitive advantage by harnessing complexity without introducing unnecessary complications. To tackle this complexity, Codreanu [3] suggests employing the six rules outlined by Morieux and Tollman in their book *Six Simple Rules: How to Manage Complexity without Getting Complicated*. These rules are founded on the premise that effective complexity management

hinges on a harmonious blend of autonomy and cooperation.

Individual autonomy leverages the flexibility and agility of people, while cooperation fosters synergy, ensuring that collective efforts are harnessed most efficiently. This dynamic sets in motion a virtuous cycle wherein enhanced performance creates more opportunities for individuals. This, in turn, leads to greater commitment, higher aspirations, and ultimately, improved performance.

It is pertinent to explore whether military organizations function as complex systems. Complex systems are characterized as systems composed of numerous agents, each of which must act individually according to its unique circumstances and requirements. Yet, these individual actions have global effects, which simultaneously alter the circumstances and requirements affecting all other agents. Within military organizations, multiple hierarchies of complex systems coexist, consisting of agents that adapt to their environments, including adversary agents, and thereby induce changes in the environments of all other agents. Given the high level of complexity in the challenges faced by military leaders, it is essential to have tools at their disposal to navigate this complexity effectively,

without succumbing to the bureaucratic tendencies often associated with hierarchical organizations.

In the specific case of the Colombian Aerospace Force, it places paramount importance on its human talent, recognizing their invaluable contributions through dedication and effort in achieving institutional objectives. Human resources stand as the primary success factor in fulfilling the organization's mission. With this perspective, the Colombian Aerospace Force has placed a strong focus on comprehending the actual tasks performed by individuals and the reasons behind their actions.

The organization actively promotes cooperation through incentive mechanisms and fosters a culture of continuous learning, leveraging the implementation of lessons learned. This approach enables the entire organization to adapt swiftly to the ever-evolving environment, ensuring its agility and responsiveness in the face of change.

### **3.4. Agility**

To conclude the analysis of the VUCA PRIME model, Johansen advocates addressing ambiguity through 'Agility.' This concept pertains to an organization's ability to respond swiftly and effectively to unforeseen opportunities and threats. It involves the capacity to promptly

reconfigure strategies, structures, processes, people, and technologies to harness these opportunities and create and sustain value. An agile organization imbues speed and adaptability into stability, thereby becoming a crucial source of competitive advantage within VUCA (volatile, uncertain, complex, and ambiguous) conditions [3].

While military organizations often operate as traditional, hierarchical entities with static structures and linear planning and control mechanisms, this does not preclude them from evolving into highly dynamic yet inherently stable organizations, akin to agile organizations. Achieving this transformation necessitates a focus on three critical aspects: the organizational structure, which dictates resource distribution; the processes that define how tasks are accomplished; and the individuals who carry out the mission [16].

The Colombian Aerospace Force has implemented mission teams as a foundational structure, providing stability to the organization by enabling rapid learning and decision cycles. These teams, which include squads in the operational sphere and technical teams in maintenance, are empowered by advanced technological tools that facilitate real-time information exchange (such as SIIO, Hermes, Teams, Office 365, etc.).

These mission teams adhere to a common and shared doctrine encompassing mission, vision, principles, and values. This shared foundation enables the creation of value for all stakeholders. Furthermore, these teams serve as the Minor Planning Units within the Planning, Programming, and Budgeting (PPBS) framework, ensuring the allocation of necessary resources for their operations.

It's essential to note that PPBS cycles often prove too extensive to allow the required agility in uncertain operational environments. Consequently, Colombian legislation has introduced the concept of contracting under manifest urgency. This approach, while emphasizing adherence to fundamental principles of state contracting such as transparency, economy, and responsibility, facilitates a more agile response to operational needs.

The Colombian Aerospace Force has organized its processes into four distinct classes within its process map:

1. **Managerial or Strategic Processes:** These processes provide overall direction to the entire institution, enabling control of both missionary and support processes. They are guided by the institutional mission and vision, which serve as guiding principles for the organization's actions.

2. **Missionary Processes:** This class comprises activities directly related to the organization's core purpose, including non-delegable tasks necessary for fulfilling the FAC Mission.

3. **Support Processes:** These processes are geared toward generating solutions and resources essential for supporting both the Management and Mission Processes. Their primary objective is to facilitate the effective, efficient, and successful operation of the institution. This class includes two subcategories: the Support Management Process and the Human Management Process.

4. **Evaluation and Improvement Process:** This process class holds a transversal role across all other processes. Its responsibility is to evaluate and enhance the institution's overall performance and effectiveness.

In Figure 3, the FAC's process map is depicted. This map takes into account the inputs from various interested parties, including society, other armed forces, and state entities. These inputs collectively contribute to the outcomes of enhancing security, defense, and fostering development within Colombia.



**Fig. 3** Process Map Colombian Aerospace Force [17]

The Colombian Aerospace Force (FAC) regards its human talent as its most valuable asset, considering it a pivotal factor for the successful management and achievement of its objectives and outcomes. In 2022, FAC introduced the Strategic Talent Plan Human, which outlines strategies for the comprehensive management of human talent across the public servant's entire career lifecycle, encompassing entry, development, and retirement phases. This strategic plan is closely aligned with the Colombian Air Force's overarching priorities.

The plan serves as a guiding framework for both military and civilian personnel, ensuring the adherence to principles of merit in job assignments, skill development, service provision, incentive programs, and individual performance evaluations [19]. It underscores the FAC's commitment to nurturing and

optimizing the potential of its human resources to meet its strategic objectives. This model, characterized by its streamlined structure, simplified processes, and a focus on human talent as the Force's most valuable asset, empowers the Colombian Aerospace Force (FAC) to swiftly and efficiently reconfigure its strategy, structure, processes, people, and technology in response to emerging opportunities and the need to protect value.

In doing so, an agile organization injects speed and adaptability into its operational stability, forging a pivotal source of competitive advantage, particularly in the face of VUCA (volatile, uncertain, complex, and ambiguous) conditions.

#### **4. A PRACTICAL CASE**

The Colombian Aerospace Force (FAC) effectively applied the

principles of VUCA PRIME to combat illicit drug trafficking by air. Let's examine how they did this:

**Vision:** The FAC's vision of achieving air and space dominance was aligned with the goal of stopping illicit drug trafficking by air from Colombian territory. Their long-term strategic vision for 2042 served as a guiding benchmark, ensuring that all actions taken were in line with this desired objective.

**Understanding:** The FAC's success in combating drug trafficking by air was underpinned by a profound understanding of the illicit drug trade. They extensively studied the routes used by traffickers and their evolving tactics. This understanding was achieved through a combination of intelligence gathering and international cooperation. By continuously adapting to the rapidly changing environment, the FAC was better equipped to respond effectively to emerging threats.

**Clarity:** The FAC prioritized operational clarity by avoiding unnecessary complications. They defined clear roles and responsibilities for all involved parties, both domestically and internationally. This streamlined mission execution and cooperation, leading to the efficient utilization of resources. Key agreements, such as the ABD (Air Bridge Denial) Convention, provided a legal framework for swift actions against suspicious aircraft in Colombian airspace, ensuring a clear and decisive response.

**Agility:** The fight against drug trafficking represented a quintessential VUCA environment. The FAC showcased agility by rapidly adjusting their strategies and tactics in response to the evolving methods of traffickers. The signing of the ABD Agreement exemplified their agile approach to dealing with suspicious aircraft. Moreover, their commitment to international cooperation and the adoption of advanced technology demonstrated further agility. The adoption of state-of-the-art radar and communication systems allowed real-time tracking and effective communication, enhancing their capability to detect and interdict illicit flights promptly.

This real-world example highlights how the Colombian Aerospace Force effectively applied the principles of VUCA PRIME to combat the complex and ever-changing challenges of drug trafficking by air. Their success underscores the importance of having a clear vision, in-depth understanding, operational clarity, and agility when operating in a VUCA environment. It serves as a compelling case study of how these principles can be employed to address real-world challenges and achieve strategic objectives.

## 5. CONCLUSIONS

In an environment like the one we live in, characterized by volatility, uncertainty, complexity, and ambiguity, military organizations like the Colombian Aerospace Force must

embrace innovative leadership models such as the VUCA PRIME model to address the challenges posed by these types of environments. By incorporating the principles of vision, understanding, clarity, and agility, they can better prepare their organizations to adapt to ever-changing environments.

The success of any organization, including the military, depends on its ability to adapt quickly and effectively to changing environments, and this adaptation is carried out by its human talent. The Colombian Aerospace Force, aware of this reality, has emphasized that its human talent is its most valuable asset, ensuring an effective response to VUCA conditions.

Leadership in military organizations is a topic in constant evolution. The dichotomy of whether leaders are born or made is secondary to the fact that leadership is a blend of art and science. The attributes and competencies included in the ALRM model allow military leaders to effectively address the challenges associated with VUCA environments.

The VUCA PRIME model is a practical guide that military leaders can employ to confront the complexities of today's battlefield and achieve mission success by integrating vision, understanding, clarity, and agility.

To succeed in a VUCA world, military organizations must strive for continuous learning and

adaptation. The Colombian Aerospace Force exemplifies the adoption of agile principles without losing focus on mission fulfillment and the achievement of its vision by 2042.

## REFERENCES

- [1] Meri, M. *The VUCA Method for Leadership & Management in Times of Crisis – Ex. Covid- 19* (Adaptation, performance, and development). DOI: 10.14738/eb.167.2021. Services for Science and Education Stockport, Cheshire, SK4 2BT United Kingdom. 2021.
- [2] Bennett, N., Lemoine, G. J. *What VUCA really means for you*. Harvard business review. 92. 2014.
- [3] Codreanu, Aura. *A VUCA Action Framework for A VUCA Environment*. Leadership Challenges and Solutions. Journal of Defense Resources Management Studies. 7. 31-38. 2016
- [4] Mackey, Richard. *TRANSLATING VISION into REALITY: THE ROLE OF THE STRATEGIC LEADER*. US Army War College. 1992
- [5] Oficina de las Naciones Unidas contra la Droga y el Delito. *Monitoreo de territorios afectados por cultivos ilícitos 2022*. Retrieved from [https://www.unodc.org/documents/crop-monitoring/Colombia/Colombia\\_Monitoreo\\_2022.pdf](https://www.unodc.org/documents/crop-monitoring/Colombia/Colombia_Monitoreo_2022.pdf). September 2023
- [6] Colombian Air Force. *Strategy for the Air and Space Development of the Colombian Air Force 2042*. Retrieved from: <https://www.fac.mil.co/es/edaesfac2042> . , 2021.

- [7] Clausewitz, Carl von. *De la Guerra*, edition directed and translated by Michael Howard and Peter Paret, Edited in Spanish by the Ministry of Defense of Spain, Ed 1999, pages 209 to 226, 249. 1999
- [8] Browne, James S. *Air Force Leadership Development: Transformation's Constant*. Air University Press Maxwell AFB, AL 36112-6615, 2003
- [9] Colombian Air Force. *Commander's Guide*. Bogota, Colombia. 2015
- [10] Ausburn, Lynna & Ausburn, Floyd. *Technical Perspectives on Theory in Screen-Based Virtual Reality Environments: Leading From the Future in VHRD*. *Advances in Developing Human Resources*. 16. 371-390. 10.1177/1523422314532125. 2014.
- [11] Hesselbein, F., Goldsmith, M., & Beckhard, R. *The leader of the future: new visions, strategies, and practices for the next era*. San Francisco, Jossey-Bass. 1996.
- [12] Browne, James S. *Air Force Leadership Development: Transformation's Constant*. Air University Press Maxwell AFB, AL 36112-6615. 2003
- [13] Rahaman, Andrew. *The Art And Science Of Leadership*. Forbes. Retrieved from: <https://www.forbes.com/sites/forbesbusinesscouncil/2023/07/14/the-art-and-science-of-leadership/>. 2023.
- [14] Headquarters, Department of the Army. *Army Leadership*, ADRP 6-22, C1, Washington, D.C.: September 2012b.
- [15] Straus, Susan G., Tracy C. Krueger, Geoffrey E. Grimm, and Katheryn Giglio. *Malleability and Measurement of Army Leader Attributes: Personnel Development in the U.S. Army*, RAND Corporation, RR-1583-A, Retrieved from: [https://www.rand.org/pubs/research\\_reports/RR1583.html](https://www.rand.org/pubs/research_reports/RR1583.html). 2018.
- [16] Czerwinski, Alberts. *Complexity, global politics, and national security*. Washington, DC: National Defense University. Retrieved from: <https://apps.dtic.mil/sti/citations/ADA460550>. 1997.
- [16] Dowdy, John, Rieckhoff, Kirk. *Agility in U.S. National Security*. Retrieved from: <https://www.mckinsey.de/~media/McKinsey/Industries/Public%20and%20Social%20Sector/Our%20Insights/Agility%20in%20US%20national%20security/Agility-in-US-national-security.pdf>, Mar. 2017.
- [17] Colombian Aerospace Force. *Process Map Colombian Aerospace Force*. Retrieved from <https://www.fac.mil.co/sites/default/files/linktransparencia/Planeacion/Procesos/Mapa%20de%20Procesos%20y%20Procedimientos%20Fuerza%20A%C3%A9rea%20Colombiana%202021.pdf>. 2020.
- [18] Colombian Aerospace Force. *Strategic Plan Human Talent*. Retrieved From <https://www.fac.mil.co/sites/default/files/linktransparencia/Planeacion/Planes/planes2022/PLAN ESTRATEGICO TALENTO HUMANO 2022.pdf>. 2022.