

MILITARY LOGISTICS IN THE LIGHT OF THE VUCA-WORLD

Andreas ALEXA

National Defence Academy, Vienna, Austria
andreas.alex@bmlv.gv.at

ABSTRACT

The term VUCA-world emerged in the military in the early 1990s and then entered the vocabulary of modern management. Moreover, despite many contrary opinions, it is still relevant. The phenomenon describes a volatile, uncertain, complex and ambiguous environment in which military logistics must operate to ensure sustainability, operability and survivability. A resilient military logistics organisation that can withstand disruptions is essential to the delivery of services. This means that disruptions have less impact on performance and can be quickly restored. Resilience is generated by two main factors, robustness and agility. Robustness created through anticipation and preparation, while agility can be strengthened through flexibility and transparency.

KEYWORDS: agility, military logistics, resilience, robustness, VUCA

1. Introduction

Recent years have shown that society, business and the armed forces face a variety of challenges. In 2008, the financial crisis led to economic contraction and unemployment; in 2020 to 2022, the Corona pandemic paralysed economic life and led to social upheaval; the Russian war of aggression against Ukraine led to changes in the European security architecture; and climate change is having a dramatic impact on humanity. All these events are characterised by volatility, uncertainty, complexity and ambiguity. Moreover, these characteristics of the VUCA-world phenomenon are very much applicable to military logistics.

This research paper begins with an explanation of the research methods and gives then an overview of the aspects of the VUCA-world. The following discussion of these aspects in the light of military logistics leads to derivations for a resilient military logistics organisation. It ends with some conclusions.

2. Research Methods

The aim of the research was to answer the fundamental question: “*How can the VUCA-world be addressed to strengthen the resilience of military logistics?*” The analytical framework used was a mixture of qualitative and quantitative methods. By using the text analysis, a profound understanding of the different aspects of the VUCA-world could be gained. The research process was secondly supported by discussions and workshops with the 20 students of the Master's programme in Military Leadership in the logistic course (focus group research). This course was held in the first semester of the master's degree programme from September 2022 to November 2022. After introductory lectures on military logistics, the different aspects of the VUCA-World and their impact on logistical support were discussed in individual groups. Due to the various experiences of the participants in national and multinational missions and operations and the

multinational composition of the groups (students from Austria, Germany and Switzerland), valuable insights were gained for the project. Towards the end of the course, the findings of the groups were presented and brought together to give the students a holistic picture.

3. About the VUCA-World

The origin of the term VUCA is not clear. However, it may have originated in a presentation by General Thurman at the *Strategic Leadership Conference* in 1991, where he used the terms “*volatility, uncertainty, complexity and ambiguity*” to describe the environment in which leaders must make decisions. Building on this, Herbert F. Barber in a 1992 article in the *Journal of Management Development* explained that leaders and managers must be able to make decisions in a highly complex and ambiguous environment.

The term was used primarily to make military leaders aware that the environment in which decisions had to be made had changed with the end of the Cold War. The clarity of the former bipolar world had given way, in the wake of the bloc confrontation, to a diffuse, partly opaque multilateral world.

The phenomenon of the VUCA environment has also been evident in the out-of-area stabilisation missions in recent decades. As Yarger noted in 2006 that “*a world order where the threats are both diffuse and uncertain, where conflict is inherent yet unpredictable, and where our capability to defend and promote our national interests may be restricted by materiel and personnel resource constraints. In short, an environment marked by volatility, uncertainty, complexity, and ambiguity (VUCA)*”.

In 2010, Keaton L. Beaumont used the insights gained in the following years from the Iraq and Afghanistan missions in his research paper *Developing 21st Century Senior Leaders*. He argued that the VUCA environment requires “*unconstrained*

thinkers to address unconventional challenges”. The way leaders think and act therefore needs to be adapted to the changing context in which decisions are made.

In the decades that have followed, the concept of the VUCA-world has manifested itself in many areas. It has been implemented in modern business management as an essential guideline for successful action. Johansen, of the Institute for the Future, adapted VUCA for the business world in his 2009 book *Leaders Make the Future*. He used it to reflect the turbulent and unpredictable forces of change that could affect organizations, and he argued that new skills, approaches and behaviours are needed to manage in the face of the four VUCA threats. The VUCA-world represents a set of challenges that individuals, teams, managers and organizations have to face. Individually, these challenges can be significant; but they can be formidable when they are combined.

According to Unkrig (2020), VUCA describes the characteristics of the modern market environment and presents the challenges that companies must have to cope with. He suggested a number of approaches to overcoming the challenges. Firstly, an ability to adapt combined with a willingness to change is necessary to be able to survive. And secondly, a certain ability to learn is also required in order to cope with increasing developments and changes. Ulrich Lenz (2019) stated that strategies and measures must be developed at the organisational level in order to use them to shape business development. The VUCA-world describes this phenomenon as open, self-organising systems. People and teams are such systems, as are companies and societies.

However, the term VUCA is now considered obsolete by some authors. It is often replaced by the acronym BANI. This describes the current environment as brittle, anxious, non-linear and even incomprehensible (Kleemann & Frühbeis, 2021). Despite this

innovation, VUCA still has its place. Judith Schneider (2023), working for the consultancy firm PwC Germany, stated in an article for the magazine *Logistik Heute*, that *“disruptions are increasingly occurring which cannot be controlled by the companies themselves, but which have a significant impact on the stability of the supply chain”*.

Overall, VUCA is a concept of different aspects, which are connected, of a competitive environment. Organizations and leaders have to know and to understand them in order to adapt their strategies and make decisions (Bennett & Lemoine, 2014).

The following is a brief explanation of the phenomenon.

3.1. Volatility

Volatility can also mean instability, discontinuity or fluctuation (Digital Dictionary of the German Language, 2023) and describes a frequently and comprehensively changing environment, which is characterised by unpredictable effects at short intervals of time (Lohner, 2019). Volatility is also turbulence, a phenomenon that is occurring more frequently than in the past (Sullivan, 2012). This makes it almost impossible to see cause and effect relationships and many of these changes come from new technologies. Therefore, one's own decision cycles must be faster than those of the competitors or, in military terms, the opponents.

3.2. Uncertainty

Colman (2015) defined in the Dictionary of Psychology uncertainty as the state or condition of not being able to know or predict something accurately. This means, that the outcome of actions is not known with certainty, and even the probabilities associated with the possible outcomes are unknown or cannot be meaningfully estimated.

For Bretzke (2020), uncertainty means that events and their probability of occurrence can only be estimated very poorly. In addition, changes can also only be predicted to a limited extent due to many imponderables (Kinsinger & Walch, 2012) and internal or external risks often lead to unexpected surprises. All planning must therefore be aimed at identifying and assessing uncertainties and risks and taking appropriate countermeasures.

3.3. Complexity

Complexity characterises the environment in which organisations, enterprises and the military has to complete its missions. Although Stephen Hawking stated that the 21st century would be ‘the century of complexity’, this is not only a 21st century phenomenon. On the contrary, from the perspective of those living in any period of time, the world, the immediate environment and its various manifestations have always been complex. Thus, political and social changes, technological inventions or developments inevitably produce more complexity (Richter & Rost, 2002). In a system-theoretical approach, this means that complexity is created by the interconnectedness and the resulting interdependencies of different parts, contributing to the functioning of the overall system at different levels through their individual properties.

In complex systems, relationships can no longer be explained in terms of cause and effect. Complexity is increased by the number and variety of elements and the different connections and relationships. In addition, the interdependencies with the environment and other systems make it difficult to predict reactions.

3.4. Ambiguity

According to Aven & Renn (2010) ambiguity refers to the degree of controversy that is associated with the interpretation of information. In this

context, facts can even be contradictory or ambivalent and information can be interpreted and weighted differently (Zamani & Ait Soudane, 2022). An ambiguous situation has many *unknown unknowns*, so there will be little prediction about the results which makes decision making more difficult and the possibility of misinterpretation increases. Ambiguity is primarily a consequence of the exponential growth of data and information, the reliability of which can no longer be assessed.

4. Military Logistics through the VUCA Lens

On the one hand, volatility is characterised by the changing environmental conditions during a mission. This may be the change of seasons, which poses challenges for personnel and material, or different battlespaces, from urban to rural areas, which requires a change in procedures and thus also in military logistical support. On the other hand, the interests of the nations or organisations involved in a conflict may change during a mission. Coalitions may break up or logistical services may cease to be provided. Finally, and most importantly, the threat may change. The Russian-Ukrainian war showed that the emergence of long-range weapons (Abdurasulov, 2024) or the attack on supply lines (Bradley, Barnett & McCarthy, 2023) jeopardised the provision of logistical support.

Uncertainty is determined by existing or potential risks. These can be external or internal in origin. Poor transport infrastructure, lack of transparency in the supply chain or unforeseen events such as accidents or natural disasters are examples (Hoffmann, 2014). From an internal perspective, poor planning, changes in personnel or a disruption in the supply chain can lead to an interruption in logistics support.

The complexity of military logistic support is characterised by the elements and the relationships between them. Looking at a military logistics network in this way, it becomes clear that different elements at different levels of command need to work together to provide logistics. Units at the tactical level have to cooperate with elements at the operational level as well as with the commercial sector, government service providers or national units. The nature of the relationships between these elements ranges from command and coordination to contractual relationships.

Information is essential for making decisions about logistics operations. The use of logistics information systems is therefore an absolute necessity. However, the variety of data can lead to different interpretations, which in turn can lead to wrong decisions. It is therefore necessary to check values and data for their validity, usability and availability. Only by looking at them from different angles and linking them to other areas can reliable information be generated.

5. Derivations

The question now is how can the challenges of the VUCA-world be met? The following deductions are based on the picture generated earlier and are shown in Figure no. 1.

Firstly, the volatility of the circumstances can be mitigated by the ability to anticipate (Tucsek, 2022). This ability to predict potential changes in the future is a success factor of robustness.

Secondly, appropriate preparation is necessary to deal with uncertainty. This requires planning and action even without a complete overview of the situation. Therefore, on the one hand, control measures are essential and, on the other hand, the creation of redundancies, for example by building up reserves or by distributing logistical resources to different locations are necessary.

Thirdly, the complex, multidimensional and cross-organisational network of relationships needs to be simplified through flexible organisational measures. In this sense, flexibility is understood as the ability to adapt quickly to changing requirements of partners and external factors and to shift resources or change processes if necessary (Novoszel, Geske, Kummer & Wakolbinger, 2022). Therefore, in order to be able to respond to specific situations and make decisions, complexity must be reduced. This can be done by breaking it down into sub-aspects, which are then easier to oversee and solve.

Fourthly, one possible response to the flood of information, which is almost impossible to process, is to increase transparency. In addition to identifying the necessary data, the quality of the data must also be determined. On the one hand, the data must be checked for correctness, consistency, completeness, timeliness and availability and the important information must be filtered out in order to generate the right decisions from it. On the other hand, the structures and processes of the supply chain, both upstream and downstream, must be made transparent, in order to identify deviations from the plans good in time and

to react to them effectively and appropriately.

Finally, the predictability of future events coupled with appropriate preparation, will lead to greater robustness and agility is subsequently increased through the corresponding transparency of the available information and a flexible organisation. This refers to the agility, manoeuvrability or mobility of organisations and people or in structures and processes (Bendel, 2019). Military logistics requires precisely this organisational and personal agility. It means being able to react to change quickly, flexibly and permanently, and being able to adapt processes or procedures quickly to the operational circumstances. Only in this way, the full potential can be exploited.

Ultimately, the resilience of military logistics, defined by retired Lieutenant General Prof. Dr. Jürgen Schnell (2018) as *“the ability to cope with external and, in particular, poorly or unpredictable disruptions and to maintain or restore the ability to act”* is enhanced by an appropriate agility and an existing robustness.

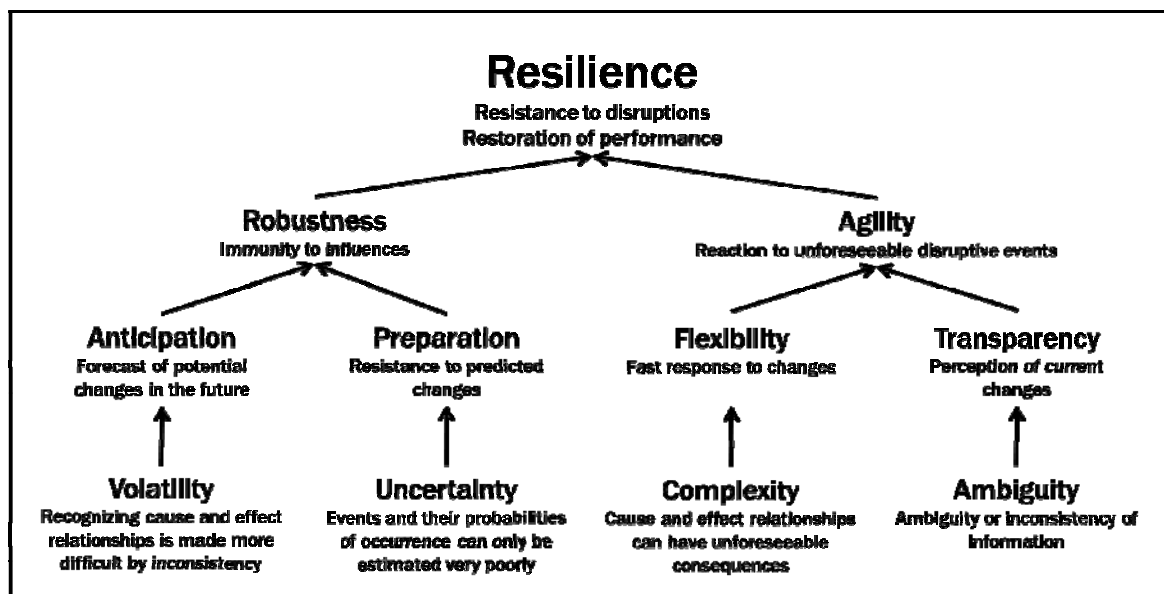


Figure no. 1: Building blocks of resilience

6. Conclusions

The phenomenon of the VUCA-world describes a volatile, uncertain, complex and ambiguous environment in which military logistics must operate to ensure sustainability, operability and survivability. All measures must therefore be aimed at avoiding logistical culmination.

A resilient military logistics organisation is essential for this. This means, on the one hand, building up the resilience of military logistics so that disruptions affect the performance of the armed forces less frequently and, on the other hand, being able to restore performance quickly.

Resilience is generated by two main factors, robustness on the one hand and agility on the other. Robustness is built through anticipation and appropriate preparation. This can counter volatility on the one hand and uncertainty in the existing environment on the other. Agility, on the other hand, can be enhanced through flexibility and transparency in order to reduce complexity and minimise ambiguity.

In order not to jeopardise the success of the armed forces, military logistics must therefore influence volatility, manage uncertainty, simplify complexity and resolve ambiguity.

REFERENCES

- Abdurasulov, A. (2024, 1 June). *Will using Western weapons on Russia help Ukraine change the war?* Available at: <https://www.bbc.com/news/articles/cjll1r1el5wo>, accessed on August 7, 2024.
- Aven, T. & Renn, O. (2010). *Risk Management and Governance. Concepts, Guidelines and Applications*. Berlin: Springer-Verlag.
- Barber, H.F. (1992). Developing strategic Leadership: The US Army War College Experience. *Journal of Management Development*, Vol. 11, Issue 6, 4-12.
- Beaumont, K.L. (2010). *Developing 21st Century Senior Leaders*. Carlisle: US Army War College.
- Bendel, O. (2019). *400 Keywords Informationsethik: Grundwissen aus Computer-, Netz- und Neue-Medien-Ethik sowie Maschinenethik*. Wiesbaden: Springer Gabler.
- Bennett, N. & Lemoine, G.J. (2014). What VUCA really means for you. *Harvard Business Review*, Vol. 92, Issue 1-2, 27-31.
- Bradley, M., Barnett, D.S., & McCarthy, D. (2023). Russian Logistics and Sustainment Failures in the Ukraine Conflict. Status as of January 1, 2023. *RAND*. Available at: https://www.rand.org/pubs/research_reports/RRA2033-1.html, accessed on August 7, 2024.
- Bretzke, W.-R. (2020). *Logistische Netzwerke*. Berlin: Springer.
- Colman, A. (2015). *Dictionary of Psychology*. Oxford: Oxford University Press.
- Digitales Wörterbuch der deutschen Sprache. (2023, Juli). *Volatilität, die*. Available at: <https://www.dwds.de/wb/Volatilit%C3%A4t>, accessed on April 25, 2024.
- Hawking, S. (2000). Millennium Interview on January 23, 2000, *San Jose Mercury News*.
- Hoffmann, J. (2014). *Risikomanagement in Logistikunternehmen und Logistiknetzwerken*. Norderstedt: Books on Demand.
- Johansen, B. (2009). *Leaders Make the Future: Ten New Leadership Skills for an Uncertain World*. San Francisco: Berrett-Koehler Publishers.
- Kinsinger, P. & Walch, K. (2012). *Living and leading in a VUCA world*. Thunderbird University.

- Kleemann, F.C. & Frühbeis, R. (2021). *Resiliente Lieferketten in der VUCA-Welt*. Wiesbaden: Springer Gabler.
- Lenz, U. (2019). Coaching im Kontext der VUCA-Welt: Der Umbruch steht bevor. In Heller, J. (Ed.), *Resilienz für die VUCA-Welt*, 49-67. Wiesbaden: Springer Gabler.
- Lohner, K. (2019). Widerstandskraft entwickeln statt Widerstand leben. In Heller, J. (Ed.), *Resilienz für die VUCA-Welt*, 227-235. Wiesbaden: Springer Gabler.
- Novoszel, L., Geske, A.M., Kummer, S. & Wakolbinger, T. (2022). Delphi Study on Supply Chain Resilience. In Novoszel, L., Geske, A. M., Kummer, S. & Wakolbinger, T. (Eds.), *Supply Chain Resilience. Insights from Theory and Practice*, 199-214. Clam: Springer.
- Richter, K. & Rost, J.M. (2002). *Komplexe Systeme*. Frankfurt: Fischer Taschenbuch.
- Schneider, J. (2023, Juli). Gerüstet für die VUCA-Welt. *Logistik Heute, Vol. 45, Issue 7-8*, 26.
- Schnell, J. (2018). *Flexibilität, Agilität und Resilienz als Ziele der Organisationsgestaltung von Streitkräften - Zum Nutzen von Streitkräften und zur Problematik der Ungewissheit*. München. Available at: <https://www.unibw.de/militaeroekonomie/nutzen-von-sk-flexibilitaet-resilienz-2.pdf>, accessed on April 10, 2024.
- Sullivan, J. (2012). VUCA: The new normal for talent management and workforce planning. *Ere.net*. Available at: <https://www.ere.net/articles/vuca-the-new-normal-for-talent-management-and-workforce-planning>, accessed on August 8, 2024
- Thurman, M.R. (1992). Presentation to the United States Army War College Strategic Leadership Conference. In Mackey, R. (Ed.), *Translating Vision into Reality: The Role of the Strategic Leader*. Carlisle: US Army War College.
- Tucsek, F. (2022). Enhancing Supply Chain Resilience Through Incorporating Business Continuity Management Systems. In Novoszel, L., Geske, A.M., Kummer, S. & Wakolbinger, T. (Eds.), *Supply Chain Resilience. Insights from Theory and Practice*, 77-86. Clam: Springer.
- Unkrig, E.R. (2020). *Mandate der Führung 4.0. Agilität – Resilienz – Vitalität*. Wiesbaden: Springer Gabler.
- Yarger, H.R. (2006). *Strategic Theory for the 21st Century: The Little Book on Big Strategy*. Carlisle: US Army War College.
- Zamani, H. & Ait Soudane, J. (2022). Strategic Leadership and VUCA environment. *Revue Internationale des Sciences de Gestion, Vol. 5, Issue 1*, 479-505.