LETTER OF PROMULGATION

By virtue of the authority vested on me by the Organic Law 05/2005 for the National Defence, I do hereby approve in the Armed Forces the proposals made in the Concept Note on “Multi-domain Operations”.

This document shall constitute the basis to initiate studies to identify possible deficiencies in the Joint Force capabilities related to this new way of understanding operations in the future battle space.

The Concept Note on “Multi-domain Operations” is a document for PUBLIC USE.

Madrid, 2nd of April 2020

Air General
Chief of the Defence Staff

(SIGNED)

- Miguel Ángel Villarroya Vilalta -
The phenomenon of globalisation has affected all aspects of human life and new technologies have played a key and decisive role in this globalisation. Currently, we are going through a technological revolution that many already call the fourth industrial revolution and which is transforming our lives and beliefs, society, how we relate to each other, communicate and, ultimately, our environment. We continually try to analyse new developments, their possibilities and how to take advantage of them, but just as large sections of society are capable of assimilating them, the truth is that many people, organisations and companies struggle to stay up-to-date and adapt as well as possible.

Our Armed Forces (AFs), as one of the main instruments of the State, must adopt an attitude of accepting continuous adaptation, seeking the maximum efficiency when executing their assigned missions. However, the dizzying technological advance ensures that these changes are more frequent and of greater magnitude, making it difficult to commit to an enduring model, if possible, even ahead of changes in the current volatile, uncertain, complex and ambiguous (VUCA) operating environment.

In this operational environment defined as the “set of conditions, circumstances and influences that affect the use of capabilities and decision-making, in relation to the operation”¹, both civil and military threats will be difficult to predict and our possible adversaries will try to exploit our weaknesses to meet their aims, if possible without crossing the threshold of open conflict, which would lead to a military escalation.

Although the Armed Forces must be prepared to face all kinds of adversaries, and to respond with the appropriate level of intensity, according to the “Operating Environment 2035”, the increase in the use of “non-conventional or hybrid strategies to destabilise, discredit or affect national interests” is expected. “Some of the actions used could come from the “grey zone”², so as to make possible responses difficult”.

Our AFs are more than used to operating in traditional physical domains (land, maritime and aerospace); however, several publications and official, doctrinal and information documents agree that non-physical domains (cyberspace and cognitive) will play an increasingly prominent role³. The Joint Force (JF) must be capable of acting effectively, integrating operations in all these domains in such a way that the achieved synergy helps to reach the assigned goals.

Though the integration of those operations that take place in the physical environments is fully accepted and set out in the joint doctrine, the same is not true with integration into these new domains (cyberspace and cognitive), which is being studied by other countries under the term “multi-domain operations”.

This integration and the increasingly widespread use within the AFs of the term “multi-domain” make it necessary to address its meaning and implications for our JF.

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¹ PDC-00 "Glossary of Military Operational Terms", July 2019.
² “Area of the spectrum of conflicts where actions outside the principle of good faith between states (bona fide) predominate, and despite significantly disturbing the peace, they do not trespass the threshold that would allow or demand an armed response” (PDC-00).
³ Operating Environment 2035 (page 12).
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1. BACKGROUND

01. Since the publication of the document “Capstone Document for Joint Operations” in 2012, a process of change began in the United States of America (USA) towards the concept of “multi-domain” in all the services.

02. On the other hand, the document “Air Force Future Operating Concept. A view of the Air Force in 2035”, issued by the USAF in 2015, deals extensively with the concept of “Multi-domain” and its implications for operations.

03. Likewise, the use of the term multi-domain has increased in recent years, since the Army and the US Marine Corps published, on 11th of August 2017, version 0.7 of “Multi-Domain Battle: Evolution of Combined Arms for the 21st Century 2025-40”.

04. Then, in December 2017, version 1.0 of the aforementioned document was published; it exclusively refers to the US Army environment.

05. Finally, in December 2018, “The US Army in Multi-Domain Operations 2028” was issued. In this publication there is a significant change in the time horizon, changing from 2025-40, as it was previously, to 2028, as it is now, indicating the urgency to deal with the new operational environment identified.

06. In parallel, the US Army has created the “Multi-Domain Task Force, MDTF”, an experimental combat unit whose purpose is to develop new tactics, techniques and procedures to be used on the new battlefield.

07. The reason behind this whole process of transformation is to deal with the threats that, by integrating new technologies from all operational environments, challenge the technological and military superiority that the United States Armed Forces have enjoyed to date, explicitly mentioning Russia and China, while not dismissing other threats.

08. In this regard, the US ARMY, as a component of the JF, would execute this type of operation (MDO, Multi Domain Operations) to recover the initiative when it had lost it to the opponent.

09. Since the United States is the main contributor to NATO, any conceptual change in the US AFs may have a considerable impact on the Alliance's operations, and hence deserves attention. In fact, it has been so, and its European allies are in the process of analysing the challenges they face to integrate their Armed Forces (AFs) into this type of operation, as regards both their military capabilities, and in the political arena⁴.

10. At the beginning of the 2019-21 conceptual development cycle, the proposal for an operational military problem on “multi-domain” submitted by the Army was studied, and, although it is acknowledged that the Air Force has specific doctrine on “multi-domain operations”, the Concepts Executive Committee (COECON) concluded that it was necessary, before undertaking any joint conceptual development, to clearly establish what should be the meaning of this term in our AFs' joint environment; the CHOD therefore approved studies to develop this Concept Note.

2. PURPOSE

11. The purpose of this Concept Note is to clarify what should be understood by multi-domain in our AFs, as a preliminary study before developing a future concept.

12. To develop a prospective document that delves into the meaning of the term “multi-domain operations” for our AFs, and which serves as a basis for identifying possible deficiencies of military capabilities for operating in the aforementioned environment.

3. SCOPE

13. The extent of the study will include the Defence Staff dependant organisations and the Services, in relation to the JF.

4. ANALYSIS

4.1 Etymology of the term

14. This lack of definition originates from the translation of the English word “domain” to refer to the physical and non-physical spaces of an operation, which we, in the Spanish AFs, have called “ámbito de operación”. On the other hand, neither does the joint doctrine of the United States provide a clear definition of the term "domain," what is a domain, or where the boundaries between domains lie.

15. According to the RAE Spanish Language Dictionary, “dominio” (domain) is defined as a “real or imaginary ambit of an activity”, while “ámbito” (ambit) is defined as “outline or perimeter of a space or place” or “space within certain limits”. In short, though these two words can be used as synonyms in some contexts, in the definitions of “ámbito” more emphasis is placed on the fact that it has to be a specific area, with precise limits.

16. Precisely this lack of tangible and precise limits that non-physical ambits (cyberspace and cognitive) have, together with the use of the English word “domain”, ensured that the term domain is used more and more in both opinion pieces and in doctrinal publications.

17. On the other hand, the prefix “multi-” means “many”; therefore if we write “multi-dominio” in Spanish, we refer to many domains.

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5 Merriam Webster Dictionary https://www.merriam-webster.com/: “A region distinctively marked by some physical feature / a sphere of knowledge, influence, or activity”.

6 Operating domains (“ámbitos de operación”): The physical and non-physical spaces—each with their own differentiated features— that condition the performance of the means, forces and capabilities that are to operate in them. (PDC-00 "Glossary of Military Operational Terms", July 2019.)


8 Ibid., senses 1 and 2

9 1st Review of Basic Aerospace Doctrine (IG-00-1).

10 Ibid.
4.2 Conceptual analysis

18. Given the characteristics we may expect to define future operating environments, it seems evident that there is an increasing number of actors who, by operating in and from all or any of the operational domains, could deny or prevent our own action in these areas.

19. The conceptual proposal that emerged from the US AFs to deal with this situation, is to promote a new way of operating that makes it possible to deter and prevent possible hostile actions by potential adversaries, in both a “competition” phase and in an open conflict phase, through the “rapid and continuous integration of capacities of the different domains”11.

20. Although the term “multi-domain operations” (MDO) is known and used within NATO, the reality is that NATO and most the countries are yet to define it. However, there is a common understanding as regards certain characteristics of this type of operations.

21. These operations are: joint, flexible, complex and capable of producing effects in and from all or many operation domains.

   a. They are joint because they always take place in the context of a joint force.

   b. They are flexible because they will take place in highly contested operational environments in which it will be necessary to exploit or create temporary windows of opportunity to generate the desired effects in different operation domains and thus achieve or facilitate achieving the aims assigned to the JF.

   c. They are complex because within a context of much interaction and interdependence among all operation domains, it will seek to carry out converging actions to influence any of them, creating continuous dilemmas for the opponent to lengthen their decision cycle12 through coordination and synchronisation of all the actors, so that the effects generated in or from their sphere of responsibility are appropriately aligned with achieving the JF’s goals.

22. That is why to execute this type of operation, it is necessary to have adequate interoperability, connectivity, command and control systems, and a change of mentality:

   a. Systems interoperability13 which allows for “understanding” among the various actors in each operation domain, as an essential requirement for any type of “multi-domain” action.

   b. Likewise, once interoperable systems are established, the connectivity between the different actors within the same field of operation and between different areas, will be key to sharing and updating the information at the same time as they generate and share the data obtained by their own sensors on the “cloud”14.

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11”Multi-domain operations” (MDO), US Army, 06 Dec 2018.
12 Continuously and dynamically forcing moving back from the “Orient” phase to the “Observe”, in the “OODA Loop”.
13 The interoperability of the systems must also include people and processes.
14 Combat cloud: Global network for data distribution and information exchange within a battle space, where each authorised user, platform or node transparently contributes and receives essential information and is capable of using it across the full range of military operations (“The Combat Cloud Enabling Multidomain Command and Control across the Range of Military Operations”).
c. Once that interoperability and connectivity have been achieved, command and control systems capable of handling these operations will be needed to guarantee essential flexibility and speed in decision-making; they should be delegated to the lowest possible level with the authority to carry them out (distributed control).

d. To do so, it will be necessary to change the mentality of the commanding officers at all levels, on the basis of robust technologies, starting with greater mutual trust, with the conviction that the fact of sharing information at all levels will allow for true “multi-domain” integration of operations, especially with the cyberspace and cognitive spheres, beyond the current concept of “joint operations”.

23. From the description of the characteristics and needs of these operations, it is understood that the term “multi-domain operations” goes beyond the execution of operations in several environments, sequentially or simultaneously; hence, even if there are effects in all areas of operation, we would only be discussing one of the characteristics of this type of operations that the JF currently executes according to the doctrine of “joint operations”.

24. It is not, therefore, simply a matter of joint operations; since, even if the nature of the operations is joint, they do not reflect the complexity, dizzying pace and forms of command and control that new technologies will impose on “multi-domain operations”.

25. What characterises so-called “multi-domain operations”, and differentiates them from what until now has been known as joint operations, is their complexity and the connectivity needed; complexity because of the technological, hybrid, globalised and changing operational environment, which forces us to face the opponent more flexibly and rapidly than we have been doing until now, and connectivity because without it, it will not be possible to execute this type of confrontation.

26. Complexity of the operational environment, which we have previously called uncertain, globalised and changing, and which is going to define the framework where countless conditions will coexist, such as: economic, social, ethnic, religious, environmental and sanitary conditions, extent of development, climatology, orography, etc.

27. Complexity in dealing with future threats. The necessary connectivity will allow for synchronisation, coordination and control of all the JF’s capabilities, in an extremely flexible, rapid and distributed fashion, and with the action in and from different operation domains, as well as achieving the necessary synergy that allows us to obtain the desired effects in all these areas in pursuit of the shared aim.

5. CONCLUSIONS

28. Driven by the USA, European countries and NATO continue to analyse the concept of “multi-domain operations” as a necessary evolution in how operations are executed due to the capabilities offered by new technologies.

29. Free access to these new technologies to potential adversaries places them in a position to dispute the battle space from all operational environments at a speed that allows them to execute higher-tempo operations, thus gaining the initiative that until now it was assumed to be in the hands of the “west”.

30. Though in the Spanish Armed Forces we refer to “ámbito de operación”, and not to “dominios”, the term “multi-domain operations” goes beyond the environments and refers to a new form of coordination, distributed control and synergy, agile and rapid, a
consequence of the evolution of new technologies and different from the joint operations concept.

31. Therefore, although Spanish doctrine uses the term “ámbito de operación” to refer to the spaces where operations are carried out, and not the term “dominio”, consistent with what is set out in this document, and to align with what this new way of operating is called in English, the following proposals are made:

6. PROPOSALS

32. Use the term “multi-dominio”, borrowed from English “multi-domain”, in the joint Armed Forces environment when referring to:

“A very complex sphere of action, encompassing all operating domains, with great interdependence and interaction between all of them (whether physical or non-physical).”

33. Same way, use the term “operaciones multi-dominio”, borrowed from English “multi-domain operations”, in the joint Armed Forces environment when referring to:

“Those operations carried out by the Joint Force that due to their agility and complexity, require adequate interoperability and connectivity that enable distributed control of the means to allow for the integration of all their capabilities and thus make it possible to produce effects in and from any of the operating domains.”

34. In addition, and in accordance with the provisions of CHOD Directive 13/19\textsuperscript{15}, use this Concept Note as the basis for initiating a study process to identify possible deficiencies in the JF capabilities related to this new way of considering operations in the future battle space\textsuperscript{16}.

\textsuperscript{15} Page A-7, Appendix A, JEMAD Directive 13/19" Joint Concepts Programme 2019-2021 Cycle”.

\textsuperscript{16} NATO believes that in the future operational environment there will be a single multi-domain battleground.
ANNEX A: BIBLIOGRAPHY

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### ANNEX B: GLOSSARY OF TERMS AND ACRONYMS

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<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>CCDC</td>
<td>Joint Centre for Concept Development</td>
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<tr>
<td>COECON</td>
<td>Concepts Executive Committee</td>
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<tr>
<td>USA</td>
<td>United States of America</td>
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<tr>
<td>EMAD</td>
<td>Defence Staff</td>
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<tr>
<td>FAS</td>
<td>Armed Forces</td>
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<tr>
<td>FC</td>
<td>Joint Force</td>
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<tr>
<td>JEMAD</td>
<td>Chief of Defence Staff</td>
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<tr>
<td>MDO</td>
<td>Multi-domain operations</td>
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<tr>
<td>NATO</td>
<td>North Atlantic Treaty Organization</td>
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<tr>
<td>PDC</td>
<td>Joint Doctrinal Publication</td>
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<tr>
<td>US ARMY</td>
<td>U.S. Army</td>
</tr>
<tr>
<td>VUCA</td>
<td>Volatility, Uncertainty, Complexity and Ambiguity</td>
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<tr>
<td>RAE</td>
<td>Real Academia Española (Spanish Royal Academy)</td>
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ANNEX C: STUDY METHODOLOGY

The main research method used in this paper is the descriptive method, which consists of “making as detailed and exhaustive a narrative, numerical and/or graphic exposition the reality under investigation as possible” (Calduch, 1999).

The techniques used were the review and documentary analysis of the available bibliography, including: doctrinal publications, articles from specialist journals, reports, studies and opinions from experts in the field, among others, not limited to the Spanish context and taking into consideration publications from allied countries such as the USA and international organisations such as NATO.

As a complement to these sources of knowledge, attendance at the seminars “Shaping NATO for Multi-domain Operations of the Future” in Essen (Germany) and “Multi-domain and C2” at CESEDEN were notable.

Finally, a questionnaire was carried out and queries made to staff who are experts in matters related to the field of study.