

# The Establishment of a Future European Terrain Database

WRITTEN BY REBECCA BELOTTI

Image credits: https://unsplash.com/photos/XYrjl3j7smo



### INFOFLASH

In the defence industries, as elsewhere, the art of strategy requires a good understanding of possible futures on which to base current choices. Change, instability and uncertainty are the lot of any decision-maker today and will be even more so tomorrow. Digital technology is more important than ever for defence, giving leaders the effective and efficient force to make informed decisions from a common, accurate and timely picture of the operational situation and occupy a strategic position on the battlefield.

In Europe, security and defence cooperation has long been the realm of Member States and other security organisations like the North Atlantic Treaty Organization (NATO). However, recent European Union (EU) -level efforts have begun to create a European defence sector, which presents unique challenges and opportunities.

Since the advent of cybernetics, connected computing has been used to perfect systems for guiding weapons to their targets (Forget, 2001). With the counter-insurgency turn in Iraq, "Big Data and algorithms" devices have been used to detect human targets among indigenous populations. In this type of conflict, the enemy merges with the rest of the population: he is not necessarily armed and in military uniform. He moves about in urban areas like other city dwellers. From this point of view, detecting the "insurgent" in the fog of irregular war has two concomitant stakes. It is important to identify this enemy at the tactical level to neutralise its resistance capacities. At the strategic level, the challenge is distinguishing him from the rest of the civilians to avoid killing individuals unrelated to the enemy.

#### European Defence Agency study

European Defence Agency (EDA) is working on establishing a European Terrain Database (ETDB), which will include a vast selection of images taken from across Europe to be made available to Member States' armed forces for multiple military purposes. To this end, a Multinational Field Trial Exercise was held on 23/24 March at the land test centre of the Italian Armed Forces (Centro Polifunzionale di Sperimentazione) in Montelibretti. More than 30 experts from military test centres based in Italy, Sweden, Greece, Spain, the Netherlands, France, and Portugal participated in the exercise co-organised by EDA and the Italian Secretariat General of the Defence and National Armaments Directorate - Technological Innovation Department.

The first part of the exercise took place outdoor, in the broader area of the test centre. Its aim was at acquiring images with several cameras working in different spectral regions (visible, long-wave infrared, short wave infrared) under distinct configurations (mounted on a drone or grounded). Many pictures of different terrain landscapes were taken, with and without a specific target. During the second part of the event, all these images were uploaded onto the prototypic software platform of the future European Terrain Database. It will be installed on EDA servers in the coming months, ready to be populated by users from different participating Member States with unclassified images in different spectral regions (visible, infrared wavelengths and microwave). The stored pictures will also include necessary or useful information and metadata for their military usage in test and/or research activities.

Once established and fully accessible, this database can be used, for instance, for target recognition, the assessment and improvement of camouflage effectiveness, the testing and enhancement of sensors in different terrains, the generation of synthetic images or the support of modelling and simulation activities.

The exercise participants came from different expert communities with interest in the ETDB, mainly scientists and technicians specialised in Optronics and Radar sensor design (including materials) and performance prediction, design, development and testing of new camouflage visible and infrared signature and Radar Cross Section mitigation solutions. The future dataset can be employed by the Ministries of Defence of all participating Member States for R&T initiatives and operational and training purposes. Therefore, the multinational field trial was an excellent opportunity for those experts to meet and explore potential cooperation opportunities among European defence test centres.

The event was organised in the framework of EDA's Defence Test & Evaluation Base (DTEB) initiative, launched in 2010 to collect, share, and harmonise defence test & evaluation standards and procedures at the European level. The DTEB has also developed into a dynamic and useful network of European Military Test Centres and companies, universities and public/private research centres operating in the sector of defence technologies.

#### Conclusion

The key to digital transformation[1] lies in building a fully connected organisation. The organisation that has "instant access to information" benefits from the efficiency of connections, from the fact that decision-makers have immediate access to information in real-time, or as needed, for each cog in the business connected. Access to information and data is the cornerstone of military operations. Being connected makes it possible to have total visibility of all resources and accurately assess the cost of services and the time required for deployment throughout the cycles of a military operation.

Creating a more coherent and integrated EU security and defence vision is part of a broader effort to mitigate new security and hybrid threats emanating from an ever-more competitive geopolitical context and evolving technological trends. The goal is to find feasible solutions for improving the EU's role as a security provider, both in its member states and globally[2].

[1] "Digital transformation" involves in-depth changes to activities, processes, skills and operational and organizational models by taking full advantage of new digital technologies and the acceleration effect they cause within of the company, from a strategic point of view, and according to the current and future situation.

[2] European Commission, "European Defence Action Plan," COM(2016) 950 final (Brussels, November 30, 2016), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016DC0950&from=en [Accessed 11 April 2022].

## Bibliography

Ablett Jonathan, Erdmann Andrew, "Défense: quatre scénarios dévolution mondiale", L'Expansion Management Review, 2013/3 (N° 150), p. 60-73, January 15, 2014, [online]. Available at: https://www.cairn.info/revue-l-expansion-management-review-2013-3-page-60.htm [Accessed 11 April 2022].

European Commission, "European Defence Action Plan," COM(2016) 950 final, November 30, 2016, [online]. Available at:

https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016DC0950&from=en [Accessed 11 April 2022].

European Defense Agency, "Field trial held to populate future European Terrain Database", March 28, 2022, [online]. Available at:

https://eda.europa.eu/news-and-events/news/2022/03/28/field-trial-held-to-populate-futureeuropean-terrain-database [Accessed 11 April 2022].

Koch Olivier, "Les données de la guerre. Big Data et algorithmes à usage militaire", Les Enjeux de l'information et de la communication, 2018/2 (N° 19/2), p. 113-123, February 11, 2019, [online]. Available at:

https://www.cairn.info/revue-les-enjeux-de-l-information-et-de-la-communication-2018-2-page-113.htm [Accessed 11 April 2022].