



Armée de terre

Centre de doctrine et d'enseignement du commandement

Military Foresight abroad: Trends, approaches and challenges of Western Nations.

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ABSTRACT.

With more security crises on the international stage and the return of international competition, foresight appears increasingly relevant to anticipate the evolution of armed conflict. Approaches differ significantly from country to country. In terms of organisation, some armies are progressively opening up to more interministerial and international cooperation, and to cooperation with the civilian world. In terms of methods, they rely on already proven processes but are increasingly seeking to innovate.

Introduction.

Strategic foresight is "a systematic approach to looking beyond current expectations and taking into account a variety of plausible future developments in order to identify implications for policies today¹". It is multidisciplinary, addressing various fields: sociology, international relations, data science, etc. It is essentially military foresight that this paper will address, that is to say, foresight that involves imagining the future of armed forces as well as their threats across the full spectrum of conflicts. It is mostly conducted by the armed forces themselves, but not always. Defense policy makers often favour foresight at the strategic level, especially in times of budgetary austerity, but foresight is also relevant at the tactical-operational level, which is of particular interest to land forces. Nevertheless, it must be recognised that institutional and academic work is rarer in this field. As a result of this multidisciplinary approach, security-oriented foresight work which may tangentially address military issues are also considered.

On the Old Continent, countries invest differently in foresight depending on their overall investment in defence. For example, Belgium, a country that invests little in its defence, spent 1.12 per cent of its GDP on this sector in 2021. This is the lowest rate in NATO, ahead of Luxembourg and Spain. As Raymond Dory writes, "In Belgium, defence-related issues

¹ "Strategic Foresight for Better Policies. Building Effective Governance in the Face of Uncertain Futures", OECD, Octobre 2019, pp2. (<https://www.oecd.org/strategic-foresight/ourwork/Strategic%20Foresight%20for%20Better%20Policies.pdf#:~:text=Governments%20around%20the%20world%20are%20using%20strategic%20foresight,review%20and%20discuss%20useful%20ideas%20about%20the%20future.2>)

remain a peripheral area, with little political visibility. As a result, they are often treated as a non-priority by political decision-makers². In this cultural and financial context, it is not so surprising to see that the means put into defence foresight do not seem to be very substantial. Thus, the military culture of a country could therefore be one of the determinants of the level of investment in defence foresight. Another criteria could be the importance of the concept of strategic independence in a country. France and the United Kingdom, the two European countries that are most inclined to assume their role as world and regional powers, practice defence foresight quite extensively. Finland, which is not yet part of the Atlantic Alliance and borders a threatening Russia, does so as well. On the contrary, Belgium, while it invests considerably in foresight in other fields (economics, civilian technology, etc.), does not have a unit dedicated to foresight within its military institutions.

In any case, military institutions and the overall defence sector are showing a renewed interest in foresight. Returning to the example of Belgium, it seems that the country's authorities have grasped the importance of anticipation. In "Vision Strategique 2030", reference is made to the need of creating a dedicated unit to "invest in strategic foresight at a structural level³". The multiplication of more or less predictable crises (the pandemic, the war in Ukraine) has brought back to the forefront the inability of states to anticipate events with major, sometimes catastrophic, repercussions. Moreover, alarmist concerns about the "world in turmoil⁴", whether they stem from fear of a global conflict or environmental considerations, tend to reinforce this dynamic. More recently, the return of war to Europe has revealed the extent to which the logic of strict rationality does not allow states to prepare themselves properly for the various possible futures (*futuribles*, using Bertrand de Jouvenel's famous formula) in the face of the self-assured hubris of some rivals.

In this context, between similarities, differences, evolutions and stagnation, it is important to look at the way other states practice defence foresight. This study focuses mainly on members of the European Union and the North Atlantic Treaty Organization (NATO). Other countries with which France has important defence cooperation agreements - such as Brazil - will also be mentioned. On the one hand, the structures and actors of defence foresight in these countries will be discussed. On the other hand, their approach and methods will also be addressed.

In addition, this research paper is essentially based on open source literature. Moreover, the answers of experts working in foreign militaries to a questionnaire prepared for the occasion have been included. This work does not claim to be exhaustive and is limited to a few countries.

1. Avoiding blind spots: a still limited overture toward other spheres.

The foresight institutions of other armed forces.

Most of the countries close to France have one or more bodies within their military institutions responsible for defence foresight.

In Germany, the Bundeswehr Office for Defence Planning (Planungsamt der Bundeswehr), whose Future Analysis Department uses foresight methods and since 2006 has produced detailed public documents. The two reference documents are the "Strategic Foresight" and the "Future Operating Environment", both of which are released internally. The department

² Raymond Dory, « La transformation de la Défense : une étape aboutie ? », *Pyramides*, n° 21, 2011, pp65-76. (<https://journals.openedition.org/pyramides/785>)

³ « Mise à jour de la vision stratégique 2030 : Recommandations », *Institut royal supérieur de défense* (IRSD), June 2021, 20p.

⁴ Thomas Gomart, « L'effolement du monde : 10 enjeux géopolitiques », *Tallandier*, 2020.

also publishes more specific documents ranging from human augmentation⁵ to underwater unmanned vehicles⁶.

In Italy, the Defence Staff (Stato Maggiore della Difesa) has a Military Policy and Planning Department (Politica Militare e Pianificazione). Its role, among others, is to develop a conceptual and doctrinal framework for the use of the Italian armed forces. It thus participates in the construction of Italian military thought and allows for the planning of future efforts. Foresight is carried out by the Ufficio Generale Innovazione Difesa (formerly Centro Innovazione della Difesa). The foresight dimension of its work was particularly visible in the publication of a recent document: the "Concetto Scenari Futuri: tendenze ed implicazioni per la Sicurezza e la Difesa" published in 2021 and whose foresight horizon is set at 2040⁷. It explicitly states that "the ability to identify 'possible futures' [...] has become an indispensable characteristic for every organization". The work of this organisation has contributed to the publication in 2019 of "Future Operating Environment post 2035: Implicazioni per lo Strumento Militare Terrestre"⁸. The approach aims to imagine the operational environment in which Italian land forces will have to operate in the next 15 years.

In the United Kingdom, the Development, Concepts and Doctrine Centre (DCDC, formerly the Joint Doctrine and Concepts Centre) presents itself as the think tank of the Ministry of Defence (MOD). Its Futures Team regularly publishes various types of foresight documents: future operational environment⁹, regional focus, Global Trends documents¹⁰ or thematic approaches (human augmentation, in cooperation with the Bundeswehr Office for Defence Planning, for example). Finally, the Defence, Science and Technology Laboratory (DSTL), also under the MOD, has a much more scientific vocation and produces horizon scanning works.

In the United States, defence foresight is fragmented among different organisations. The U.S. Air Force has the Air Force Futures, the intelligence community relies, among others, on the National Intelligence Council, and the Pentagon relies on the Office of Net Assessment. The U.S. Coast Guard and the U.S. Marine Corps also conduct foresight. The U.S. Army has two distinct bodies: the U.S. Army Training and Doctrine Command (TRADOC), which has a foresight horizon of 2030¹¹, and the Army Futures Command, which looks ahead to 2040.

Progress in military foresight must be analysed through the prism of the uniqueness of the military sphere. The particularities of the military culture sometimes make the armed forces

⁵ « Human Enhancement - Eine neue Herausforderung für Streitkräfte? », *Bundeswehr Office for Defence Planning*, May 24th 2016, 14p. (https://www.bundeswehr.de/resource/blob/140504/d757cfdc2b1a467fb7d88544075_da1d9/ft-he-data.pdf)

⁶ « Unmanned Underwater Vehicle: Sachstand und Perspektiven für militärische Unterwasserwirkmittel », *Bundeswehr Office for Defence Planning*, 2017, 31p. (<https://www.bundeswehr.de/resource/blob/140478/ced16e7db8129001e1f020424a617d4e/ft-uuv-data.pdf>)

⁷ « Concetto scenari futuri : tendenze ed implicazioni per la Sicurezza e la Difesa », *Stato Maggiore della Difesa*, Edition 2021, 86p. (<https://www.difesaonline.it/mondo-militare/tendenze-ed-implicazioni-la-sicurezza-e-la-difesa-italiana-concetto-scenari-futuri>)

⁸ « Future Operating Environment post 2035 : Implicazioni per lo Strumento Militare Terrestre », *Stato Maggiore della Difesa*, 52p. (<https://www.esercito.difesa.it/comunicazione/Le-5-Sfide/Documents/FOE%20POST%202035%20-%20versione%20italiana.pdf>)

⁹ « Strategic Trends Programme : Future Operating Environment 2035 », *Development, Concepts and Doctrine Center*, November 30th 2014, 48p. (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1076877/FOE.pdf)

¹⁰ « Global Strategic Trends: The Future Starts Today », *Development, Concepts and Doctrine Center*, October 2018, 273p. (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1075981/GST_the_future_starts_today.pdf)

¹¹ « The Operational Environment (2021-2030): Great Power Competition, Crisis and Conflict », *U.S. Army Training and Doctrine Command (TRADOC)*, January 11th 2022, 20p. (<https://oe.tradoc.army.mil/2021/10/04/the-operational-environment-2021-2030-great-power-competition-crisis-and-conflict-2/>)

isolated from other governmental institutions. Also, the sensitive nature of military inhibits international cooperation and civilian partnerships. Nevertheless, as the usefulness of foresight is being recognised, things are progressively changing. In the face of these specificities, three levels of opening, more or less recent, can be observed:

- an opening towards other governmental agencies (joint and interagency);
- an opening towards other countries and international organisations (international and multinational);
- an opening towards the world of research and experts from the civilian world (civil-military).

The purpose of these openings can be summarised in one formula: avoiding blind spots. Indeed, each State, each institution, and even each individual, tends to conduct foresight through the prism of their own culture and their own strategic concerns. Broadening the spectrum of participants involved in defence foresight would thus broaden the horizon of possibilities and reduce the risk of surprise. Lars Brozus, a researcher at the German Institute for International and Security Affairs (SWP) specialising in foresight, mentions the concept of "multi-perspectivity": multiplying views to avoid blindness¹².

Towards a whole-of-government approach.

Lars Brozus argues that countries that support multilateralism should invest in cooperative foresight that is both interagency and inter-governmental. He makes the observation that most countries are far from having adopted a whole-of-government approach and instead favour "stovepipe" approaches which create blind spots. There is reportedly a logic of competition rather than cooperation at the interagency level, that is to say, between the various state bodies¹³. A 2017 report by the German government states that the various ministries are required to cooperate more deeply in their planning and in their respective early warning systems. Therefore, foresight, to be effective, must be interagency¹⁴. It is a matter of creating an "ecosystem"¹⁵ capable of spreading the culture and know-how necessary for the professional application of foresight methods, even within the military.

To this end, some states have established bodies so that the various actors in foresight, including military institutions, can strengthen their cooperation. For example, the U.S. Army is a participant in a recently created American agency: the Federal Foresight Community of Interest, created in 2013 at the initiative of the U.S. Department of Veterans Affairs. It is intended to be a central forum for different foresight agencies, both public and private, to share their knowledge and practices as well as to strengthen their cooperation. In 2018, the Government Accountability Office (GAO) established the Center for Strategic Foresight, which reports to Congress and serves as a cross-cutting organisation: the U.S. Army and other public security institutions are partners. Nevertheless, American defence foresight remains rather decentralised. These organisations are primarily intended to create links between the various actors rather than to bring them together under the same roof.

¹² Lars Brozus, « Strategic Foresight for Multilateral Policy: Challenges, Opportunities and Success Factors », German *Institute for International and Security Affairs*, October 31st 2019, 4p. (https://www.ssoar.info/ssoar/bitstream/handle/document/65534/ssoar-2019-brozus-Strategic_foresight_for_multilateral_policy.pdf)

¹³ « Interinstitutional relations between the various government agencies that practice foresight are more competitive than cooperative », *op. cit.*

¹⁴ « Federal Government of Germany Guidelines on: Preventing Crisis, Resolving Conflicts, Building Peace », *Federal Government of Germany*, 2017, 155p, pp110-116. (https://www.auswaertiges-amt.de/blob/1214246/057f794cd3593763_ea556897972574fd/preventing-crises-data.pdf)

¹⁵ « Features of effective systemic foresight in governments around the world », *Government Office for Science*, 2021, 101p. (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/985279/effective-systemic-foresight-governments-report.pdf)

The American approach seems quite unusual, probably because of the gigantic size of its government and military structures. In the United Kingdom, in a more centralised way, the Government Office for Science (GOS) has been established. It provides foresight on a wide range of topics, from ocean issues to the mental health of citizens. Nevertheless, the DCDC, which deals with military issues, does not seem to be structurally linked to it, reflecting the fact that the military institutions still operate quite separately. The same is true for Canada with Policy Horizons Canada, to which the country's armed forces, although they practice foresight internally, do not seem structurally linked.

These examples allow us to identify two main approaches. One is decentralised, formalising inter-institutional cooperation through the creation of organisations dedicated to building a network of partners. The other, more widespread, is centralised. It brings together different foresight themes within the same organisation, without always integrating agencies close to the military sphere. However, one should not generalise. The visible structure of the foresight ecosystem alone cannot attest to the extent of these cooperations, which often depends on interpersonal relationships and ad-hoc or otherwise informal partnerships¹⁶.

International cooperation in foresight.

One of the difficulties lies in the fact that some smaller countries do not necessarily have the means to organise their defence foresight, or do not yet see sufficient interest in it. This is where cooperation between states can play an important role. Even more than the financial aspect, the interest lies in the harmonisation of foresight methods and mutual learning. In practice, in Europe, this cooperation is mainly carried out through two organisations: the North Atlantic Treaty Organisation (NATO) and the European Union (EU).

For NATO, within the framework of the NATO Long-Term Military Transformation, the organisation regularly conducts a foresight exercise: the "Strategic Foresight Analysis" (SFA)¹⁷. It is conducted by the Allied Command Transformation (ACT). Its most recent report, published in 2017, describes the future strategic context up to 2035. There are also strictly regional approaches (North Africa and Sahel, Arctic, Russia). The ultimate goal of this work is to develop the Framework for Future Alliance Operations, a document that identifies "the capabilities that NATO forces must develop over the next 20 years to maintain military advantage and the ability to prevail"¹⁸. Member states draw directly from the organisation's work. For example, the Italian "Future Operation Environment post 2035 - Implicazioni per lo Strumento Militare Terrestre" cites NATO documents in its bibliography. The North America and Arctic Defence and Security Network (NAADSN) has published a report that seeks to apply the results of the "NATO Strategic Foresight Analysis 2017" to Canadian defence and security policy¹⁹. While this organisation is not state-owned, its work shows that NATO's foresight work is taken seriously and can be applied to national contexts.

As for the EU, it has launched multiple initiatives to develop foresight within its institutions. Since 2020, the European Commission has produced a yearly strategic foresight report. However, this work only indirectly addresses the defence dimension and aims above all to define and develop the social, economic, geopolitical, ecological and digital resilience of the EU. Its Joint Research Centre (JRC) also conducts forward-looking analyses, with the report

¹⁶ However, it is interesting to note the appearance of DCDC's « Global Strategic Trends: The Future Starts Today » on the GOS website, suggesting cooperation between the two bodies even though its work does not usually appear there.

¹⁷ « Strategic Foresight Analysis », *Allied Command Transformation*, 2017, 87p. (https://www.act.nato.int/images/stories/media/doclibrary/171004_sfa_2017_report_hr.pdf)

¹⁸ Allied Command Transformation Strategic Foresight Work, NATO. (<https://www.act.nato.int/futures-work>)

¹⁹ « Understanding the Future Arctic Environment: Applying NATO Strategic Foresight to Canadian Arctic Defence and Security », *North America and Arctic Defence and Security Network*, 2020, 103p. (<https://www.naadsn.ca/wp-content/uploads/2020/09/20-Sept-15-NAADSN-Canadian-Arctic-Security-Strategic-Foresight-Analysis-2020-DRAFT-FOR-DISCUSSION-2.pdf>)

"Shaping and Securing the EU's Open Strategic Autonomy by 2040 and Beyond"²⁰. Since 2019, there has been a European Commission vice president for inter-institutional relations and foresight. More broadly, the EU-wide Foresight Network annually brings together foreign ministers (or other ministers who deals with European affairs) to discuss priorities in strategic foresight at the European level. The "European System of Strategic and Policy Analysis" (ESPAS) holds a yearly conference dedicated to foresight, which brings together all the European actors in foresight, from the Commission to the Parliament and the European Investment Bank. Nevertheless, while the participants are numerous, they do not directly address defence foresight. Also, in a more academic, less institutional and more security-oriented approach, the European Institute for Strategic Studies (EUISS) publishes foresight analyses in its "Strategic Foresight" section on a regular basis. The analyses are accessible to all member states and are useful for the convergence of their respective strategic visions. In addition, there is an objective for the Union: to participate in the drafting of the Union's strategic compass adopted in March 2022. The EU has therefore taken up foresight in many ways. As it is not a state and does not have its own army, it seems more capable of delivering multidisciplinary work than documents of strictly military interest. Nevertheless, since 2015, the European Defence Agency (EDA) has been working to describe possible futures in defence technologies with a 20-to 30-year horizon. The Technology Foresight Activities aim to identify the disruptive technologies that will change the defence sphere²¹.

Nevertheless, this cooperation has its limits. Some states may be tempted not to invest in foresight, preferring to rely on the work of the organisations to which they belong. However, the analyses of NATO or the EU are often carried out through the prism of their own strategic priorities as multinational organisations. Yet, national foresight should be adapted to the needs of each State. Moreover, foresight work contributes to the creation of a specific strategic culture. For a state, not developing its own foresight culture and ecosystem can have consequences on the effectiveness of military institutions.

In addition to multilateral cooperation within the framework of international organisations, there may be bilateral cooperation, or cooperation between a small numbers of states. This is notably the case between Sweden and the United Kingdom. The British DCDC works for both countries. On top of these well-established cooperations, there may be one-time partnerships. For example, the same British DCDC recently published an extremely detailed report on human augmentation in cooperation with the German Bundeswehr Office for Defence Planning as well as Swedish and Finnish experts²².

An overture to the civilian world: the outsourcing of foresight and the use of civilian experts.

Since its popularisation after World War II, foresight, particularly in the field of defence, has been supported by a large ecosystem of private research institutes (think tanks). The creation of the RAND Corporation in 1948 by the Douglas Aircraft Company under the impetus of the U.S. Air Force is an important moment in the history of foresight. It set standards in terms of governmental decision support, whether in terms of nuclear deterrence (the famous Mutually Assured Destruction, MAD), space programmes, artificial intelligence,

²⁰ Shaping and securing the EU's open strategic autonomy by 2040 and beyond », *Joint Research Center*, August 26th 2021, 132p. (<https://op.europa.eu/en/publication-detail/-/publication/7e1bcf73-06e2-11ec-b5d3-01aa75ed71a1#:~:text=Shaping%20and%20securing%20the%20EU%27s%20open%20strategic%20autonomy,and%20beyond%20in%20a%20systematic%20and%20systemic%20way.>)

²¹ Technology Watch & Foresight, *Agence européenne de défense*. (<https://eda.europa.eu/what-we-do/all-activities/activities-search/technology-watch-foresight#techF>)

²² « Human augmentation - The Dawn of a New Paradigm », *Ministry of Defence*, Mai 13th 2021, 110p. (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/986301/Human_Augmentation_SIP_access2.pdf)

or the use of wargames within the defence staff. It is also within RAND that the famous Delphi method was developed, a method that aims to question a group of experts in order to draw long-term trends from their successive answers. Today, the organisation also works for other countries. For example, the United Kingdom recently commissioned RAND to produce a comprehensive report on the multi-domain concept. In Germany, the Fraunhofer Institute, one of the world's largest scientific research institutes, provides technology foresight to the federal government, as it has also done²³ for the Swedish Ministry of Defence.

The level of the link to the government varies. Sometimes completely private, these institutes may also financially depend on the state. The German Institute for International and Security Affairs (SWP), for example, is mainly funded by the German Federal Government. External funding may not exceed 25% of the government's share²⁴. In contrast, the Royal United Services Institute (RUSI) is funded mainly by a mosaic of foreign actors, both public (Canadian and Qatari foreign ministries, United States Department of Defense, etc.) and private (Google, Facebook, British American Tobacco, etc.).

While this practice has advantages, such as flexibility, the active participation of researchers in innovative approaches, and financial benefits, it also has its limits. Indeed, the use of external workforce tends to prevent the long-term construction of an ecosystem and foresight expertise within the States' institutions themselves.

Another practice is the direct integration of civilians into the defence foresight apparatus, either directly in the armed forces or within the ministries of defence. For example, Belgium, when updating its "Vision Stratégique 2030" in 2021, relied on the work of ten non-military scholars²⁵. The U.S. Coast Guard's "Project Evergreen", recognised as a success, required the recruitment of civilian foresight experts. Military personnel, initially lacking significant strategic foresight experience, relied on their advice²⁶.

Finally, in order to learn the methods, the military do not hesitate to call upon private companies whose activity consists in training them to do foresight. For example, the Polish company 4CF has been able to cooperate with the Dutch Land Warfare Centre to share their foresight and strategic planning methods²⁷. In addition to training, specialised companies offer even more technical services. For example, the German foresight company Z_punkt has been commissioned by the Bundeswehr to provide the methodological knowledge and online tools necessary for its strategic foresight.

²³ Defense Technology Foresight, *Fraunhofer Int.* https://www.int.fraunhofer.de/en/business_units/defense-technology-foresight/Projects.html

²⁴ Funding of SWP, *German Institute for International and Security Affairs.* <https://www.swp-berlin.org/en/swp/about-us/fundamentals/funding>

²⁵ « Environnement de sécurité 2021-2030 », *Institut royal supérieur de défense (IRSD)*, June 2021, 21p. (<https://www.defence-institute.be/wp-content/uploads/2021/06/200622-Security-environment-2021-2030-FR.pdf>)

²⁶ Peter Scoblic, « Strategic Foresight in U.S. Agencies: An Analysis of Long-term Anticipatory Thinking in the Federal Government », *New America*, December 15th 2021. (https://d1y8sb8igg2f8e.cloudfront.net/documents/Strategic_Foresight_in_U.S._Agencies_FINAL.pdf)

²⁷ Project for Royal Dutch Army Completed, *4CF.* <https://4cf.pl/en/project-for-royal-dutch-army-completed/>

2. Combining traditional methods and innovation.

The persistence of traditional methods.

During the decades following World War II, several foresight methods were developed. Two examples are the scenario method and horizon scanning.

The scenario method is particularly widespread today. According to Michel Godet, a French economist and specialist in this method, it "aims to construct representations of possible futures, as well as the paths that lead to them. The objective of these representations is to highlight the major trends and the seeds of disruption²⁸". Here are three examples from different countries:

- In Germany, the Future Analysis Unit of the Bundeswehr describes how it develops alternative future scenarios. To do this, it relies in particular on IT tools that allow the partitioning of data and the creation of consistency matrices. From these scenarios, it draws up a list of potential types of conflicts in the future (space pirates, cyber attacks on satellites, conflicts involving geo-engineering, etc.²⁹).
- In the United States, the National Intelligence Council (NIC) has published "Global Trends 2040: a More Contested World". The report develops five scenarios: "Renaissance of Democracies", "A World Adrift", "Competitive Coexistence", "Separate Silos" and "Tragedy and Mobilisation"³⁰.
- The Brazilian Ministry of Defence published a document entitled "Cenário de Defesa 2020-2039" in which several scenarios are developed, ranging from a SARS virus attack by ultranationalists in Southeast Asia to a French hostile armed intervention in Amazonia³¹.

Another approach consists in horizon scanning. Defined by the OECD, it is "a technique for detecting early signs of potentially important developments through a systematic examination of potential threats and opportunities, with emphasis on new technology and its effects on the issue at hand³²". This practice, which relies primarily on the use of data, is particularly used in technology foresight. The British MOD states that it uses it in its "Science and Technology Strategy 2017". Another example is NATO's Cooperative Cyber Defence Centre of Excellence (CCD COE) which has been publishing a document entitled "Cyberspace Strategic Outlook 2030: Horizon Scanning and Analysis" since 2021, describing emerging security challenges in the cyber domain³³.

²⁸ Michel Godet, Philippe Durance : « Chapitre 2. Des problèmes aux méthodes », *La prospective stratégique. Pour les entreprises et les territoires*, Dunod, 2011, p61.

²⁹ Strategic Forces in the German Armed Forces, *German Bundeswehr Office for Defence Planning* (https://futuresconference2017.files.wordpress.com/2017/06/hetzer_vergin_theiler.pdf)

³⁰ « Global Trends 2040: A More Contested World », *National Intelligence Council*, March 2021, 144p. (https://www.dni.gov/files/ODNI/documents/assessments/GlobalTrends_2040.pdf)

³¹ « Un rapport de l'armée brésilienne pointe la France comme principale menace militaire », France 24, February 2nd 2020. (<https://www.france24.com/fr/20200208-un-rapport-de-l-arm%C3%A9e-br%C3%A9silienne-pointe-la-france-comme-principale-menace-militaire>)

³² « Glossary / Definition of Terms », OECD, 2016. (<https://www.oecd.org/gov/oecd-shrm-glossary-of-terms-2016.pdf>)

³³ « Cyberspace Strategic Outlook 2030: Horizon Scanning and Analysis », *Cooperative Cyber Defence Centre of Excellence*, 2022, 103p. ([195.222.11.251/uploads/2022/03/Horizon_Scanning_vol2_15032022.pdf](https://www.ccdcoe.org/195.222.11.251/uploads/2022/03/Horizon_Scanning_vol2_15032022.pdf))

The emergence of new methods.

While it is clear that traditional methods (scenarios, horizon scanning, etc.) have not lost their relevance, the defence foresight organisations of the studied armed forces are also developing new approaches. Less conventional, their aim is often to push the envelop of traditional foresight, notably by consulting participants whose voice is less often heard. Among these initiatives, the "Futures Student Essay Competition" carried out by the British DSTL can be mentioned. Young British students are invited to write an essay on the future of defence. In the same way, although calling upon more expert profiles, the U.S. Marine Corps has called upon science fiction authors to imagine its future operational environment³⁴. The U.S. Army's TRADOC launched the "Mad Scientist" initiative to bring together experts to imagine the future of war. Unconventional ideas are publicised, whether through podcasts (The Convergence) or regular writing contests. The European Defence Agency has developed a particularly elaborate methodology for its main foresight exercise (Technology Foresight³⁵). It emphasises the importance of collective thinking, starting from "divergent thinking" to arrive at "convergent thinking". Among the ideas is the invitation of Future tellers: experts with various profiles whose role is to stimulate the creativity of the whole group. Some are called inspirational speakers. Through short talks similar to TED Talks, they give their vision of the future. They are seen as a way to shake up prejudices and bring out new ideas (icebreakers).

Other innovative methods are sometimes closer to prediction than to foresight. They are nevertheless interesting in that they demonstrate a constant search for innovation. Here again, it is the desire to avoid blind spots and to reduce uncertainty that encourages those responsible for foresight in the armed forces (military or civilian) to broaden the spectrum of methods. The German "Cassandra" project consists in analysing literary works from sensitive regions in order to identify future crises³⁶. The military is directly involved in the project through its funding, but the work is done by academics. It is not an analysis of the terms used in the books studied, as the authors felt this was insufficient. The analysis is divided into several categories ranging from the emotions transmitted, the enemies identified and the mythological impact of the text to the reception of the public, the scope of its dissemination and literary reviews. In this way, the leaders of the project claim that their work have predicted the Algerian social unrest in 2019 and the Nagorno-Karabakh conflict in 2020. The project is therefore part of the early warning system, but the method is more about prediction than identifying possible futures. On the other side of the Atlantic, the Intelligence Advanced Research Projects Activity (IARPA) is piloting the Good Judgement Project. The idea is to question citizens without any experience of strategic analysis about future events. The quality of their predictions is said to be 30% higher than those of the intelligence officers taking part in this study, even though the latter had access to classified information³⁷. All of these projects may echo the idea of "scientific prescience" enabled by artificial intelligence technologies. Initially fantasised about in films such as *Minority Report*³⁸, it is now seriously considered by the Defense Advanced Research Projects Agency (DARPA), which has launched the KAIROS project. This project aims to analyse the enormous quantities of data generated daily on the Internet to draw trends and even to try to predict certain future events.

³⁴ August Cole, Charles E. Gannon, Max Brooks, Trina Marie Phillips, « Marine Corps Security Environment Forecast: Futures: 2030-2045 », *Marine Corps Warfighting Laboratory*, November 2016, 48p.

³⁵ « EDA Technology Foresight Exercise: Methodology », *European Defence Agency*, August 2021, 66p. ([https://eda.europa.eu/docs/default-source/documents/eda-technology-foresight-exercise-\(2021\)-methodology88ffb3fa4d264cfa776ff000087ef0f.pdf](https://eda.europa.eu/docs/default-source/documents/eda-technology-foresight-exercise-(2021)-methodology88ffb3fa4d264cfa776ff000087ef0f.pdf))

³⁶ Philip Oltermann, « 'At first I thought, this is crazy': the real-life plan to use novels to predict the next war », *The Guardian*, June 26th 2021. (<https://www.theguardian.com/lifeandstyle/2021/jun/26/project-cassandra-plan-to-use-novels-to-predict-next-war>)

³⁷ Alix Spiegel, « So You Think You're Smarter Than A CIA Agent », *National Public Radio*, April 2nd 2014. (<https://www.npr.org/transcripts/297839429?t=1654242134377>)

³⁸ Steven Spielberg, *Minority Report*, 20th Century Fox, 2002.

Conclusion.

The current period has seen the return of foresight within governmental and military institutions in particular. However, the level of institutionalisation, the structure of foresight ecosystems, and the methods may differ significantly depend on the countries. The future of the discipline remains uncertain. Its development in the military will depend particularly on its incorporation into the teaching provided to officers and, consequently, into the military culture itself. In the late 1990s, the U.S. Army War College introduced a course entitled "Futures: Creating Strategic Visions". Its purpose was to train the minds of future U.S. military leaders to envision a multitude of possible futures, to break down intellectual barriers to develop their creativity.³⁹ However, this course is no longer taught.

Although the last two decades have seen the development of more and more long-term studies, such as the Global Trends documents, which imagine the future twenty or even thirty years from now, the question of the horizon of future-oriented studies is to be questioned. The situation in Ukraine could force governments to favor short-termism rather than to draw out deeper trends. Pure strategic foresight would then tend to be conflated with intelligence or simple strategic analysis, thus erasing the uniqueness of its methods and its potential for exploitation in the long term.

Another issue is the effective implementation of foresight in national policies. Many argue that it is often misused, if not ignored. For example, according to Peter Scoblic, co-founder and director of Event Horizon Strategies, an American foresight private company, the Bush administration focused too much on desired horizons rather than on more pessimistic futures. Instead of looking at the problems ahead in Iraq, they might have projected their vision of an increasingly democratic Middle East⁴⁰. Others, making the same observation, offer solutions. For example, the Project on Forward Engagement was initiated in 2001 by Leon Fuerth to explore methods for integrating foresight into the American political process, including the military, and for configuring government systems to deal with "complex" challenges. Supported by more than 30 researchers, the report offers concrete solutions to make foresight a systematic and fully integrated tool in U.S. institutions. It is one of the most detailed initiatives aimed at making foresight a practical tool that is not disconnected from power. Although foresight is back in Western armies, there is still progress to be made in order to take full advantage of this tool that is now indispensable for decision-making.

³⁹ Charles W. Taylor, « Creating Strategic Visions (Carlisle Barracks, PA: Strategic Studies Institute, 1990 » *Strategic Studies Institute*, 1990. (https://community.apan.org/cfs-file/_key/docpreview-s/00-00-04-07-30/Creating-Strategic-Visions.pdf)

⁴⁰ J. Peter Scoblic, « We Can't Prevent Tomorrow's Catastrophes Unless We Imagine Them Today », *Washington Post*, March 18th 2021. (<https://www.washingtonpost.com/outlook/2021/03/18/future-forecasting-strategic-planning/>)