AI and Warfare: Pending Issues for Europe

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Advances in artificial intelligence (AI) will impact and permeate most aspects of life, and the military and security domain are not exempt from these progressions. AI holds great potential for warfare to be waged in a faster, more precise, and 'less human' fashion with new enhanced capabilities. Faster, because AI systems can process large-scale data and make decisions for military operations based on that; more precise, since machine-learning enabled tools such as object and facial recognition as well as foresight analyses promise, in theory, superior accuracy; and 'less human' as decision-making powers are transferred to machines – be it in terms of anticipating or mitigating crises or even in battlefield situations.

Concerning the development of potential new capabilities, the international debate (especially in Europe und Germany) on how AI is transforming the battlefield is predominantly focused on the development of lethal autonomous weapons systems (LAWS) or – in a more plastic visualization – 'killer robots' and how to stop or contain these developments. It is to some extent understandable that a particular focus is on AI-enabled capabilities with the biggest possible 'nightmare scenarios'. However, as indicated above, AI in the military context goes beyond LAWS. The potential application possibilities comprise several fields, including cyber and information operations, logistics, data and intelligence gathering, the enhancement of command and control capabilities, and unmanned naval, aerial, or land-based vehicles.

This poses enormous challenges for armed forces such as, among others, the question of how to incorporate this wide variety of AI-enabled systems into the strategic, operational, and tactical planning and implementation. Furthermore, the implications of becoming more reliant on machines in the military realm must be addressed from the technical, political, and ethical side.

A Shift in the Public-Private Nexus

However, not only the tools or the way warfare is conducted are subject to change, but there is also a shift concerning the sources of technological developments, including relevant defense technologies. The source of technological innovations is now the private sector in the first place, which is manifested in how the market value of great tech-companies such as Google, Amazon, Baidu, and Alibaba have increased over the last years.

This has profound implications for governments in general which are becoming more and more reliant on private companies. In other words, this entails a shift

in the public-private nexus. For instance, the two so-called AI superpowers – the United States and China – have increased the collaboration between their militaries and commercial enterprises in recent years. In the U.S. case, the Pentagon and DARPA (Defense Advanced Research Projects Agency) as its main R&D entity is pushing for collaborations with big tech companies in the framework of Project Maven to integrate AI systems into the military realm. And China is developing the so-called state-led 'military-civil fusion' to produce dual-use technology systems such as AI and better integrate and transform commercial developments into their armed forces.

Given this geopolitical context, the EU and its member states are trailing behind in the development of most of the emerging technologies such as AI. The militaries and the defense sectors are affected by these developments.

Recent Activities on National and EU Level

These new emerging parameters pose a series of questions. The EU is under pressure to find solutions and approaches to cope with the growing significance of AI in the military. Yet, initial approaches and developments toward that direction can be identified lately.

First, European states have started to draft AI-related military documents: In September 2019, the French defense ministry published its first AI military strategy. It is hardly surprising that Paris took the initiative in that context since the French AI strategy (For a meaningful artificial intelligence) from March 2018 already emphasized the need for the creation of synergies of civil and military technological innovations to develop AI capabilities in the security realm. Also, in Germany, where the defense community has been rather timid in acknowledging the military AI dimension (beyond arms control matters) in the past, the German Army Concepts and Capabilities Development Centre released a position paper on AI use for land forces one month later.

Second, those developments are flanked by recent initiatives on the EU level. In August 2019, AI was on the agenda of an informal meeting of EU defense ministers, whereas Finland has further pushed the issue during its presidency of the Council of the EU in the second half of 2019. Beforehand, in May 2019, Finland, Estonia, the Netherlands, Germany, and France issued

as food for thought "Digitalization and Artificial Intelligence in Defense", which is a good point of reference for the current status of the EU in this realm: Although it presents a good overview about how the drafters perceive the issue, it is salient that the paper´s prime purpose is to pose unanswered questions.

Challenges Ahead for Europe

Broadly speaking, three areas for action for the EU and its member states can be identified: First, in order to achieve a productive transfer and adaptability of commercial AI technology for military purposes in European context – as trivial as it may sound – a strong AI industry in Europe in the long term is an essential prerequisite, with the need of more investments. Since AI is a general-purpose technology, the development of an AI ecosystem on the European level will benefit all kinds of areas and industries, including militaries and the defense sector. For instance, advances in image recognition algorithms for non-military intents can also be modified for object identification in combat situations. Furthermore, to increase AI-related defense research and in order to materialize the notion of a European innovation system, more joint laboratories and research partnerships are needed to facilitate closer research between the military, the defense industry, commercial enterprises, and academic institutions.

Second, since the EU itself and its member states are still very much in the early stages concerning the interface of AI and warfare, a fundamental analysis about the current status of AI military integration in the member states must be carried out. This will help to point out the gaps and identify how to pool and develop AI-related capabilities in order to boost cooperation in the field of AI among the member states. The European Defense Fund can play an important role in this context.

Third, in order to achieve a thriving AI defense ecosystem on a European scale, the EU and its member states have to set regulatory framework conditions and show the political will to include AI in the European security context beyond ethical arms control discussions.

In sum, Europe is at the beginning of the process of integrating AI technologies into the military realm. However, considering the global developments, the need to act is pressing.