

POSSIBILITIES OF USING ARTIFICIAL INTELLIGENCE IN EU AND UN PEACEKEEPING ACTIVITIES

Imre NÉGYESI

University of Public Service, Budapest, Hungary
negyesi.imre@UNI-NKE.hu

ABSTRACT

The main purpose of writing this article was to show how disruptive technologies, including artificial intelligence and machine learning, can be used in military operations. We also covered how the UN and other international organisations have begun to regulate this rapidly exploding field from a policy perspective. We presented some of the technologies that use AI and made suggestions for their general military application and how these technologies can be used in peacetime operations. Artificial intelligence and intelligent devices can also bring enormous benefits in the areas of command and control systems, reconnaissance and intelligence activities. We also presented issues and dilemmas related to developments in this direction, such as ethical, liability, security and information protection problems and dilemmas.

KEYWORDS: artificial intelligence, AI ethics introduction, machine learning, UN peacekeeping

1. Introduction

Artificial intelligence is the newest and most controversial development area of our time. It offers enormous potential not only in everyday life, but also in the military domain, which is why we felt it important to explore its potential for sub-analysis in defence and multinational peacekeeping operations in as much depth as possible. The aim of the research was therefore to:

- show how disruptive technologies can be applied;
- show how artificial intelligence and machine learning can be applied to military operations.

Our main hypothesis was that these new technologies could help military operations to succeed. This was

demonstrated by presenting key AI systems, such as command and control systems (e.g. JADC2), modern unmanned aerial vehicles (UAVs) (Aljehani et al., 2020), geospatial applications and facial recognition. In addition, the potential of military applications has been discussed and proposals for the effective use of AI in peace operations have been proposed. We also discussed how the United Nations and other international organisations have begun to politically regulate this rapidly exploding field, where we believe they are at a significant disadvantage, as the development of the technology would no longer warrant negotiations but rather pre-planned plans and actions. In line with the nature of the study, a qualitative research method was used. Since the article

is exploratory in nature, we used content analysis and the search for internal correlations to clarify the initial problem and prove our main hypothesis. The importance of the research was also demonstrated by the fact that many armed and armed groups are already using AI without having to comply with any international regulations.

2. The Use of Artificial Intelligence in the UN and the EU

It can be stated that artificial intelligence will not be circumvented in the near future, as certain elements of it will also be easily accessible even to terrorist groups. In national defense and peacekeeping operations, we must keep pace with the enemy's information processing capabilities. Therefore, steps must be taken as quickly as possible to prevent enemy data collection as much as possible, and to explore the potential applications of intelligent and learning systems. In this article, we present some technologies that use artificial intelligence and make suggestions for their general military application, as well as how these technologies can be used in peace operations. Artificial intelligence and smart devices can also provide tremendous benefits in command and control systems, reconnaissance, and intelligence activities. We also note some of the problems associated with moving in this direction, such as issues and dilemmas related to ethics, liability, security and information privacy.

According to Copeland (Encyclopedia Britannica, n.d.), the definition of artificial intelligence is: *"the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings"*. Artificial intelligence capabilities can also be used to great effect in various defence domains, such as reconnaissance and intelligence, to observe and predict the behaviour of targets or

monitor the activities of enemy groups, even to identify targets and carry out autonomous attacks if necessary. Artificial intelligence can thus be used in the military context just as it can be used in our daily lives. For example, it can be used for everything, from recognising faces and body movements to analysing habits and predicting further actions or, in the case of combat systems for automation.

The United Nations uses artificial intelligence for many purposes, although it has many concerns about its military applications (European Commission, 2019; Négyesi, 2020). However, for tasks not affected by ethical issues, there are several examples where the UN uses artificial intelligence for complex calculations and forecasts. World Food Program specialists (Market Trends platform, 2022) have worked with university researchers to develop models that help decision-makers make real-time assessments, even under rapidly changing conditions. Researchers from the UN World Food Programme (2022), the University of London and CEU have collaborated to develop machine-learning models to help predict global food shortages in the near future, thereby helping governments and relevant international agencies understand where and how to most effectively address them. By its own definition, the international research group used a unique global dataset for the models, which it says can explain 81 percent of the variation in food inadequacy.

According to the development paper, the machine-learning models draw on indirect data sources in a variety of areas, including food prices, macroeconomic indicators (including GDP), weather, conflict, prevalence of malnutrition, population density, supply and past trend uncertainties. The goal is to enable short-term forecasts that are now able to show the food security situation in near real time, and even suggest methods to determine which variables influence the

changes observed therein. In my opinion, the forecasts can be of great help in pre-planning which areas should be supported in the future and where financial or material assistance needs to be provided. They also help decision-makers to take the

right steps as early as possible. The World Food Program (WFP) has used machine learning models to develop map that shows nutrition problems (and other aspects risk), the Hunger Map which can be seen in the figure below.

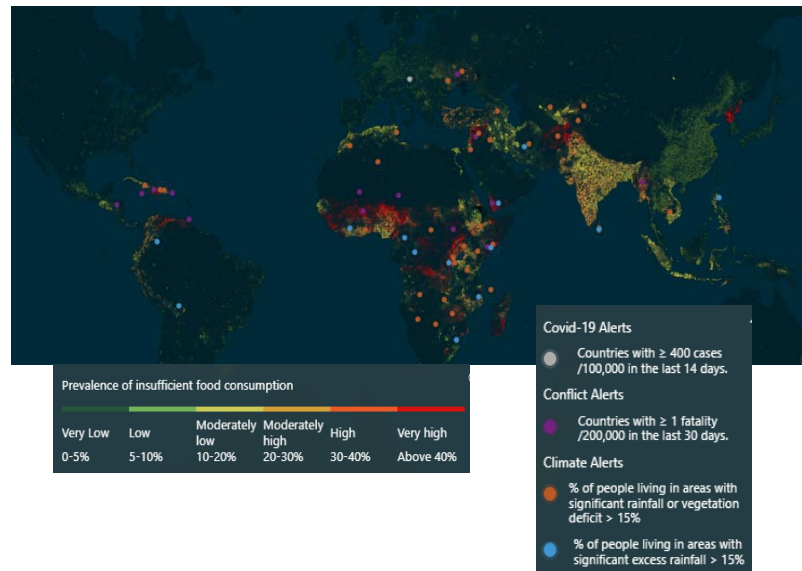


Figure no. 1: *Map of the risks examined by the UN*
(Source: UN World Food Programme, 2022)

The map above gives a very good overview of where in the world there is less hunger and where there are serious food problems. In addition, the UN has also marked on the same map where the COVID epidemic is even more present, which may be due to the fact that this dangerous disease is a pandemic. All this can be of great importance for the development of tensions and the escalation of incipient conflicts. We can also see that the UN also indicates where there has been a death due to conflict in the last 30 days, as this also weighs heavily on the emotions and possible outrage of various populations, so it can also be an important predictor of the further development of problems.

It is the same with the climate threat. The analytical map above shows the occurrence of such problems based on the processed data (blue and orange dots). Both too little and too much rain has huge direct

and indirect impacts on people's everyday lives. The direct impacts mainly include drought, desertification, lack of drinking water, drying up of rivers and stagnant water bodies. Unfortunately, this is one of the typical problems of our time, due to climate change. On the other hand, the effects of heavy rainfall can lead to flooding. These phenomena affect the poorer developing countries the most, while the developed, rich countries are mainly responsible for the causes of climate change (e. g. greenhouse effect, ozone depleting gas emissions, industrial production). In addition, we have taken into account problems that arise later as indirect effects, such as food shortages, erosion (decline, degradation of agricultural land), and climate change – which often force people to move or migrate, and create discontent that results in conflict and insurgency. The increasing spread and success of the

Islamic State terrorist organization (ISIS), for example, can be largely attributed to these causes. Thanks to artificial intelligence data analysis, these problems can be identified and predicted so that their management can be faster, more economical and more efficient.

It can be concluded that the UN recognizes the benefits and importance of advanced technologies, albeit with some reservations, already using them for situational awareness and planning, and investing resources in their implementation. In November 2021, the United Nations published the historically significant document defining the shared values and principles necessary to ensure the healthy development of artificial intelligence. The agreement was adopted at the 41st session of the General Conference of UNESCO and expresses renewed cooperation on ethical issues related to artificial intelligence. The document considers the ethical issue of artificial intelligence as a general consideration based on a comprehensive, ever-evolving framework of interrelated values, principles, and actions. This can provide guidance for societies to deal responsibly with the known and unknown impacts of artificial technologies on people, societies and the environment. It provides a basis for accepting or rejecting artificial intelligence technologies.

As mentioned earlier, the UN has set up special programmes to study the impact of artificial intelligence and to ensure that these new technologies benefit humanity as much as possible. In my opinion, it is very positive and promising that high-level aspects are discussed at regular conferences that are attended by other government agencies and civilian actors, in addition to UN. Moreover, we can see that they are already relying on AI for environmental protection analysis, as a new accounting standard and methodology have been created based on it. If advanced technology

can help countries get an even clearer picture of how well they are using environmental resources, then these regulations and instructions should definitely be seen as useful. If they can really produce and analyse objective and authentic data in this way, they can also hold a mirror up to the developed and over-consuming countries, and there will be no more opportunity to further push aside in favour environmental problems, as opposed to prioritizing industry and economic growth.

3. An Overview of UN Missions with regard to Disruptive Technologies and Artificial Intelligence

As the world develops technologically, the UN can also take advantage of technological diversity to support peace operations. If it misses this opportunity, it will also harm the chances of peace, as has happened many times in the past when the UN has not been adequately prepared for difficult peacekeeping missions. For the world organisation to be effective in the 21st century, it must not only develop its own technological capabilities, but also be familiar with the more advanced technologies of the parties to conflict and the civilian populations in war-torn areas. Mobile phones, GPS and the Internet are increasingly accessible and are changing the nature of conflict, even in remote areas. If the UN is not adequately prepared, its operations will fall victim to potential adversaries and organisations working against peace processes, such as attackers using remote-controlled improvised explosive devices. Increased technological awareness will help the UN prevent attacks and work with potential partners, such as regional organisations and friendly coalitions of varying technological sophistication. We really have to acknowledge that even societies in the so-called ‘developing’ world now have easy access to very advanced technologies

(Cisco, 2020; Négyesi, 2021). The mobile phone, for example, offers excellent possibilities for remote control of any device, and GPS, which is available to everyone, is now very accurate in terms of positioning. These devices help immigrants coming to Europe, for example, to move from city to city, from country to country, even over thousands of kilometres. They can also communicate very effectively with each other, with their families and with their helpers, enabling them to organise their journey in a precise and dynamic way. The same applies to missions in crisis areas. Opponents or insurgents now have very easy access to advanced technology to support their activities, which they can use, for example, to build organisations, monitor the activities of peacekeepers, eavesdrop on communication channels, or the remote control of equipment mentioned above. The digital transformation of peacekeeping (Dorn, 2016) must be organised around twelve technological principles:

- be accessible;
- protect data and privacy;
- be demand-driven;
- not be harmful;
- be gender-sensitive;
- be people-centred;
- be inclusive and transparent;
- be interdisciplinary;
- support partnership;
- support realistic expectations;
- be sustainable, and
- be flexible.

In order to understand the risks and opportunities, as well as the possibilities of using digital technologies, it is important to understand how technology shapes conflict. The use of technology by actors in conflict-affected environments ranges from disinformation and incitement to violence, hate speech, surveillance, control and intelligence, to platforms for dialogue, mobilisation and recruitment to armed groups, cyber-attacks and other types of

attacks. The vast amount of data generated gives great power to its owners and analysts, and conceals collective data harms such as exploitation of public data, breach of confidentiality, surveillance of behaviour, information disruption, sabotage of information infrastructure, and interference. Fortunately, significant progress is being made. The UN has already published its Peacekeeping Technology and Innovation Strategy. More importantly, the organisation appears to have the will and ability to implement the strategy.

4. Capabilities and Properties of Artificial Intelligence in Military Applications and Peace Operations

Artificial intelligence encompasses many methods, but we can say that the main goal is to develop machines that are capable of performing useful reasoning tasks. Early AI systems are still limited in their capabilities, meaning that they can only perform the specific tasks for which they have been programmed or trained. Today's AI systems do not have the broad, flexible, general intelligence of humans, which would allow them to perform a wide range of tasks. Although AI methods are general and can be used to solve a wide range of problems, AI systems are not able to adapt flexibly to new tasks and environments on their own. AI is a general scientific concept, but these systems can be programmed and trained for many specific tasks so that they can perform useful functions, in many cases with human or superhuman performance. However, AI systems do not always need to perform at superhuman levels to be useful and valuable. In many cases, their value comes from being cheaper, faster and easier to use than human resources. Autonomy should not be confused with automation. The latter is capable of carrying out processes independently according to defined rules and controls. Autonomous behaviour is more than that, as it is not only capable of

routine, mechanical tasks, but can also operate independently of control, make independent decisions, learn and gain experience, and then use it. Artificial intelligence can be used to develop autonomous systems that have a relatively high degree of freedom to perform tasks independently, with less human supervision. Autonomous systems are capable of superhuman accuracy, reliability, speed and durability. With autonomy, fewer people are needed to perform complex processing tasks. With autonomy, one person can control and monitor multiple systems. By building autonomy into physical systems, vehicles can be designed in ways that would not be possible if people had to travel in them, allowing them to be used – without human presence – in remote, potentially dangerous places. With autonomy, it is possible to create robotic snakes that can squeeze through narrow pipes, underwater gliders that can operate for years at sea, small disposable drones; or robots that can clean up after nuclear disasters.

Artificial intelligence brings a new element to combat operations: it complements human thinking. Machines, whether physical or digital devices, will be able to perform tasks on their own, within certain limits. Because today's artificial intelligence systems are relatively limited, human intelligence will remain the most advanced cognitive processing system on Earth for the near future. The weakness of machine intelligence and the development of human intelligence are of paramount importance in warfare, since the main elements of combat are unpredictability and disorganisation. In the cognitive age, combat will be partly the result of AI and partly the result of human intelligence. Human intelligence will definitely remain the main element of combat for a long time to come. Humans will still be involved in the activities, but the introduction of artificial intelligence is likely to significantly change the course of combat.

AI enables the use of autonomous vehicles that are also smaller, stealthier, faster, can carry more people, can stay on the battlefield longer and can take more risks. The many new systems will be very valuable in a wide range of applications, including reconnaissance, logistics, resupply, medical evacuation, as well as attack and defence. The most important applications of AI are likely to be in information processing and management. Armed with AI, armed forces will be able to operate faster, with more systems, and conduct more complex and distributed operations (Cambridge Dictionary).

5. Artificial Intelligence Applicable in Peacekeeping Missions

Some military applications of artificial intelligence have been introduced that can improve the effectiveness of multinational peacekeeping operations (Scharre, 2019). These technologies would contribute significantly to the successful performance of non-kinetic tasks, and in some cases - for example, with autonomous drones - even to intelligent combat tasks.

Facial recognition attempts to recognise human faces using artificial intelligence. It mimics how a person recognises a face. Facial recognition software records facial features, the shape and geometry of the face, and the distance between key facial features to create a unique face template, a pattern of facial features that is used to identify or group faces by comparing them to databases of faces. The goal of facial recognition algorithms is therefore to assess whether two faces belong to the same person. Its use raises many questions, particularly from an ethical and human rights perspective.

Among the military applications, we highlight JADC2 technology (BAE Systems, n.d.; Congressional Research Service, 2022). JADC2 is an acronym used by the US Department of Defense (DoD) and stands for Joint All-Domain Command and

Control. JADC2 also uses artificial intelligence to ensure rapid and efficient sharing of intelligence, surveillance and reconnaissance data in a networked environment. The immediate availability of information enables faster decision-making. JADC2 uses artificial intelligence algorithms to process large amounts of data from multiple sources and can suggest appropriate responses, making command and decision making much more efficient.

This system therefore uses a high level of artificial intelligence and requires very advanced interoperability tools and systems. In my opinion, the main advantage of the concept is that it ultimately provides leaders with what appears to be a good decision on the tablet – for example, on the possibilities of overcoming the detected targets – but the AI itself does not make the decision. While maintaining the benefits, this resolves ethical and human rights dilemmas and clarifies the question of who can actually be held responsible for the decision made based on the AI's results.

Access to data and information will be critical in the future operating environment. In addition, a comprehensive approach across all theatres of war will be required to confront potential peer adversaries, with friendly forces employing ground, Joint All-Domain Command and Control (JADC2), air, sea, space and cyber forces against the enemy's targeting assets. The concept of Joint All-Domain Operations thus enables commanders to access information to conduct simultaneous or sequential operations by rapidly and continuously combining surprise and all capabilities across all warfighting domains to gain physical and psychological advantage, influence and operational control.

Summarising the results of our analysis, we can say that in UN peace operations missions, it may not be the technology that offers the most significant improvement in terms of direct combat support, but rather the ability to update situational awareness as quickly and

accurately as possible. Linking sensor systems and analytical systems at the highest possible level can lead to information processing that can identify potential threat actors and groups up to days in advance. If the huge amount of information that can be gathered through civil-military cooperation and liaison and monitoring teams can be quickly combined, aggregated and evaluated, and compared with other intelligence information using AI, it can provide very good approximate information on the plans of armed groups operating in the mission area of responsibility and, also very importantly, on the intentions, sentiments and opinions of the local population.

6. Conclusions

The processes that affect security are changing more rapidly, becoming more complex and harder to predict. Economic, social, environmental and technological changes are significantly altering the interpretation of security, so that we no longer need to interpret security solely in political and military terms. Today, the overt use of armed force is less typical, which can be said even in spite of the war raging in our neighbourhood, because it was preceded by very serious cyber and information operations, and these are constantly being emphasised. Therefore, countries and alliances are trying to achieve their goals through other forms of pressure or so-called proxy wars. A key element of this is asymmetric warfare. Hybrid warfare means additional uncertainty and leads to much faster, more easily erupted and less predictable conflicts.

The UN is deeply engaged with the technological outcomes of artificial intelligence and is using AI tools with sufficient efficiency for its own purposes, but there are still, and it is expected that there will always be, opportunities for further development. After reviewing several reports and sources, we conclude

that ethical concerns are significant among UN leaders. Particular attention is being paid to human rights, which are threatened by new technologies and are now being undermined in a number of ways. However, it must be borne in mind that technological developments are already making artificial intelligence available to adversaries and terrorist organisations, and their capabilities in this area will continue to grow.

It is recommended that artificial intelligence be used as widely as possible in UN peacekeeping missions, as it offers significant advantages in the automation and intelligence of data processing, the development of leadership and management, reconnaissance, intelligence gathering and the intelligent processing of intelligence data. This is particularly true in

multinational military operations, where language difficulties and personnel changes every six or twelve months hinder continuity and the proper transfer of information and data. Finally, there is a need to integrate artificial intelligence into military activities. It must be taken into account that it affects many areas, even almost all activities, and represents a huge opportunity for development. That is why we should train specialists whose professional skills can also be used in the application of artificial intelligence in domestic military higher education; a master's degree, on the basis of which it would be possible to create a professionally prepared special unit, thus increasing Hungary's role in UN missions.

REFERENCES

Aljehani, M., Inoue, M., Watanbe, A., Yokemura, T., Ogyu, F., & Iida, H. (2020). UAV communication system integrated into network traversal with mobility. *SN Applied Sciences*, Vol. 2, 1057. Available at: <https://link.springer.com/article/10.1007/s42452-020-2749-5>.

BAE Systems. (n.d.). *What does JADC2 stand for?*. Available at: <https://www.baesystems.com/en-us/definition/what-does-jadc2-stand-for>.

Cambridge Dictionary, available at: <https://dictionary.cambridge.org/dictionary/english/disruptive-technology>.

Cisco. (2020). *Cisco Annual Internet Report (2018-2023) – White Paper*, available at: www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white_paper_c11-520862.html.

Congressional Research Service. (2022). *Joint All-Domain Command and Control (JADC2)*, available at: <https://sgp.fas.org/crs/natsec/IF11493.pdf>.

Copeland, B.J. (n.d.). *Alan Turing and the beginning of AI*. Encyclopedia Britannica, available at: <https://www.britannica.com/technology/artificial-intelligence/Alan-Turing-and-the-beginning-of-AI>.

Dorn, W. (2016). *Smart Peacekeeping: Toward Tech-Enabled UN Operations*. New York: International Peace Institute.

European Commission. (2019). *High-Level Expert Group on Artificial Intelligence: Ethics Guidelines for Trustworthy AI*, available at: <https://op.europa.eu/en/publication-detail/-/publication/d3988569-0434-11ea-8c1f-01aa75ed71a1>.

Market Trends Platform. (2022). *The United Nations: Empowering the UN agencies with 'AI for Good' Series*. Analytics Insight, available at: <https://www.analyticsinsight.net/the-united-nations-empowering-the-un-agencies-with-ai-for-good-series/>.

Négyesi, I. (2020). A mesterséges intelligencia és az etika (Artificial Intelligence and Ethics). *Hadtudomány (Military Science), Issue 1*, 103-103. Available at: http://real.mtak.hu/109501/1/103-113_Negyesi.pdf.

Négyesi, I. (2021). A mesterséges intelligencia katonai felhasználásának társadalmi kérdései (Social issues of the military use of artificial intelligence). *Honvédségi Szemle (Defense Review), Vol. 149, No. 1*, 133-144. Available at: <https://kiadvany.magyarhonvedseg.hu/index.php/honvszemle/article/view/199>.

Scharre, P. (2019). *Military Applications of Artificial Intelligence: Potential Risks to International Peace and Security – Features of Artificial Intelligence, Strategy for the Digital Transformation of UN Peacekeeping*. Available at: https://peacekeeping.un.org/sites/default/files/overview_of_dts_implementation_roadmap_-_may_2023.pdf.

UN World Food Program USA. (2022). *10 Ways WFP Is Using Digital Tech to Help Hungry People Around the World Better and Faster*, available at: <https://www.wfpusa.org/articles/10-ways-wfp-digital-tech-help-hungry-people-around-world/>.