

MILITARY AFFAIRS AND NATIONAL SECURITY

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ANALYSIS OF DEVELOPMENT TRENDS IN SCIENCE AND TECHNOLOGIES REGARDING THEIR USE IN MODERN MILITARY LOGISTICS

The participation of Ukraine in international peace and security operations under the aegis of the UN, NATO and other international organisations is of utmost importance. Ukraine has experience of participating in operations under the aegis of NATO in Bosnia and Herzegovina, Kosovo, Macedonia, Iraq, Afghanistan as well as the Mediterranean and the Indian Ocean. It is defined by Law of Ukraine that the participation of Ukraine in international efforts to maintain peace and security, interstate systems and mechanisms of international security is one of the main principles defining the formation of state policy in the spheres of national security and defence of Ukraine [1].

All the aforementioned has a significant impact on military logistics, hence the necessity for the analysis of development trends in science and technologies regarding their use:

1. The transition to a digital supply chain, which includes the processes of:
 - the real-time inventory tracking;
 - the interaction of consumers with material means;
 - the operators and equipment location;
 - the use of this information for planning and productivity improvement.

Such technologies as GPS-tracking, radio-frequency identification (RFID), UPCs, smart-tags, location data, wireless sensor networks play a defining role in the

digital supply chain.

The potential benefits of a fully implemented digital supply chain include resource, time and money economy as well as an increase in profit and a reduction of the impact on the environment.

2. Advanced manufacturing is another important direction in logistics, the key aspect of which is 3D-printing. The printers are located closer to the task performance area, which reduces the production and storage requirements as well as the supply line. 3D-printers can be attached to combat units starting from battalions and up or even installed on a certain equipment (for example, a battle ship). Such decentralisation of spare parts manufacturing increases the mobility and readiness of troops as they become less dependent on the 'logistics tail'.

3. The wide use of autonomous vehicles and unmanned aerial vehicles to solve logistic problems.

Autonomous vehicles (AV) and unmanned aerial vehicles (UAV) will allow to perform logistic tasks involving fewer military personnel, provide for an increase in speed, accuracy and bandwidth of logistics, thus significantly improving the function of military actions. This will certainly reduce combat losses among servicemen, especially directly in combat areas. The aforementioned AVs and UAVs will also be used during the deployment and relocation of troops to combat zones or their evacuation as well as in humanitarian and disaster relief missions [3].

In order to ensure compatibility with NATO in the information space, the scientific institutions and the Armed Forces of Ukraine are doing active work on creating automated troop (force) management systems based on modern solutions such as C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance), in which an individual's functions are replaced by intellectual systems even in terms of decision-making [2].

The armed forces logistics in the leading countries of the world is based on the peculiarities of their application strategy defined by the national military doctrines, the economic capabilities of the state, the status of the state, the operational capabilities of the armed forces and the prospects for their development (reformation).

References:

1. Pro natsionalnu bezpeku Ukrainy. Zakon Ukrainy vid 21.06.2018 r. № 2469-VIII. URL: <https://zakon.rada.gov.ua/laws/show/2469-19> .
2. Zablotskyi V. Tsyfrovyyi vymir ZSU. Za yakykh umov tse mozhlyvo? [Digital measurement of the Armed Forces. Under what conditions is this possible?] Oboronno-promyslovyi kurier. Informatsiine ahentstvo. URL: <http://opk.com.ua/>.
3. Coalition Autonomous system—the future of military logistics. GOV.UK. 2019. URL: <https://www.gov.uk/government/news/coalition-autonomous-systems-the-future-of-military-logistics>.