



The military robots are here... and now?

military-Earth thinking notebook

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The author presents us in an argumentative and critical way the stakes and the operational perspectives of robotization and battlefield automation in modern conflicts, in particular for the French armies.

Issues of robotization and battlefield automation

In 2007, on his return from Iraq, an American general declared: "If I had had more robots at my disposal, I would have spared the lives of many soldiers." In 2008, under President Obama, drone strikes on the Afghan-Pakistani border reached an all-time high, with more than 128 operations during the year. On the one hand, it is clear that the robot allows the protection of the soldier by avoiding difficult or even dangerous tasks, but on the other hand, the drone allows the American administration to conduct a war from a distance by freeing itself from the sovereignty of countries. This "proxy war", on the edge of legality, is being waged under the cover of the fight against terrorism. Beyond the use of armed drones by the Americans, the robotisation and automation of military operations raise real moral, ethical and legal questions and risk profoundly changing the art of waging war and conducting military operations if the subject is not taken into account.

Today, the temptation is great, there is only one step: the "art of war" could mutate and become more of a "science of war".

Robotisation is a real challenge for modern armies. France, like other Western armies, has decided to have an exploratory concept of military robotics and to look seriously at the issue. What place should be given to robots in our armies? What are the risks involved in conducting increasingly complex military operations and what are the limits that should not be exceeded? What role should humans play in the operational and decision-making process?

Robotisation[1] and automation[2] military operations are major challenges that open up major operational prospects for the armed forces of the 21st century. France has chosen the path of caution to take up these new ethical and technical challenges and to avoid profound changes in the "art of war". Indeed, the French line imposes two imperatives: that man remains at the heart of warfare and that the principles of the law of war are obviously not called into question.

Battlespace robotics: an opportunity for armies to seize

This development is quite natural in these times of financial crises and the "transformation of war".[3] of a war that is now taking place across the entire spectrum. War can be global, civil, technological, major, inter-state, lightning, urban... The advent of robotics to respond to these different evolutions responds to the principle of economy of forces and allows the development of new operational and industrial capacities.

- Economy of forces and means

In these times of financial crisis, strong reduction in size and lack of means, the robotization and automation of the battle space present an excellent opportunity for armies. Despite the very high initial development costs of potential machines or robots, armies should not miss this opportunity. Indeed, the Americans remain at the forefront of this field. In 2010, for example, the US Army trained more drone pilots than fighter pilots. The stakes for the land forces are no less high: improving the safety of the combatant (demining robots such as the Packbot robot and the IED fighter robot, for example), and improving the safety of the fighter (the Packbot robot).[4], CBRN reconnaissance robots[5]) and its capacities (HERCULE exoskeleton, robots for lightening freight or transporting injured people...).

- New operational capabilities

New opportunities in the fields of intelligence and target acquisition are also emerging. France also took a step forward in 2013 by purchasing its first unarmed MQ-9 REAPER UAVs from the Americans, intended to replace the SIDMI[6]/Harphang system, which had run out of steam. Research in the field of military robotics is taken into account and strongly developed by the DGA.[7]...but still needs to be stimulated. In this respect, new missions will soon be possible thanks to miniaturisation and nanotechnologies, which will significantly improve the stealth or vulnerability of systems, allow long duration missions or missions with no return. According to the Israeli daily Yedioth Ahronoth, the flying robot developed by Israel, known as the "bionic hornet", is a priori capable of making its way into very small places in order to be able to carry out real surgical strike operations with, for example, the neutralisation of enemies that were previously difficult to reach.

- An opportunity for the defence industry

Finally, the French defence industry and European consortia could seize this opportunity. In economic terms, emerging markets will be immediately available and this could encourage Europeans to develop new joint technological projects with high added value. Dassault aviation quickly followed the movement by launching the development and tests of its NEURON drone, which made its first flight in 2012 at the Istres air base.

Mastering this cultural and ethical revolution

Indeed, the man soldier, like the military leader and the political decision-maker, must remain at the centre of the war, "in contact" with the acts that form the basis of the combat. This strategic revolution will not take place without a general awareness of the realities of robotisation and battlefield automation, without a reflection on the place of man and without a controlled consideration of the ethical, political and legal implications.

- Limiting human disengagement .

In the first place, the Western armies and France in particular will have to ensure that human disengagement is limited, because the danger does exist. Indeed, combat and war are won on the ground, by and with man. Moreover, the US armies have learned the consequences of the dehumanization of combat in Iraq and Afghanistan in the 2000s at their own expense. Joseph Henrotin describes very well the risks associated with the "bubble of technologization" becoming a "virtual bubble" that cuts the modern soldier off from reality, from direct contact with the population or even with the enemy, and encourages him to mix real and virtual. This may even unconsciously lead him to commit humiliating, degrading or even inhuman acts towards prisoners, wounded or enemy remains. Ethical abuses can result from this over-power syndrome and a gap can be established between man and his environment. Ethical questions are now being raised with the effective development of RLA.[8]. The U.S. Army has recently been testing the X-47B combat drone, which is completely autonomous in its navigation and firing decision. Military leaders, just like political leaders, cannot reasonably accept to rely on the goodwill of a machine, a drone or a robot, no matter how great its artificial intelligence! Indeed, every decision has an immediate media and political impact in our society, which lives in immediate action and decision. The military, and decision-makers in general, must therefore give priority to decision support rather than decision automation. This human disengagement appears more perniciously also in digitized and automated command systems and structures. The use of NEB[9] and the automation of excessive operations lead to a crushing of the layers of command: the strategic level is sometimes substituted for the operational and tactical levels, which de facto reduces the autonomy of the leaders.

- And so political disengagement

Moreover, the robots must not become a kind of army of programmed mercenaries, fighting for a state disengaging its men from war. This reality could encourage decision-makers and politicians to engage in wars "by proxy" and, in effect, to disengage from their leadership responsibilities. When a nation engages its sons in war or conflict, there is a certain responsibility assumed by the political decision-maker, fundamentally different in the case of robots or machines.

- Taking into account legal or sociological limitations

War is more and more legally regulated and framed by international conventions! Legal limits could very quickly be reached with uncontrolled robotization and automation of operations. What liability would be incurred in the event of fratricidal fire or collateral damage? Would the military commander or the programmer be liable? How can we proportion and scale responses in conflicts that we rightly seek to deal with using the

"global approach"? The legality of the systems in relation to international conventions on arms control and limitation will have to be carefully examined, because tomorrow these new systems are likely to proliferate. Finally, sociological limits could be crossed. The notion of the "war of the coward" which has already made its appearance, particularly in asymmetric conflicts, would give a new physiognomy to war, establishing a gulf between friend and foe. Confrontation between robots and humans might eventually produce the ultimate "clash of civilizations".

A challenge for France: a cautious but proactive position

France must reconcile the consideration of military robotics, so as not to fall behind technologically and militarily on the international scene, and the style with which it conducts its military operations. The robot therefore finds its place in support of ground manoeuvres and the soldier.

- Relevance of the concept and usefulness for France

France must maintain its capacity for autonomous situation assessment, which involves taking into account the advantages of military robotics. The White Paper on Defence and National Security of 2013 has of course enshrined the strategic function of knowledge and anticipation. Moreover, since man is not present in all dimensions of space, the interest of the machine is of course relevant. France has a duty to develop automated tools and to accept this reality in an innovative but controlled way. Cyberspace as a fourth dimension is, for example, an issue at the beginning of this century. The virtual and the machine being at the heart of this space, the consequences are no less real.

- Moratorium on RLA

France is moving forward cautiously but resolutely with the drafting of an exploratory concept on military robotics. The development of this concept in the second phase of the SCORPION programme is already taken into account for the 2020 horizon, but France has not yet decided on the development of this concept. The development of this concept in the second stage of the SCORPION programme is already being considered for 2020, but France has not yet developed the concept of offensive robotic weapons, while some Anglo-Saxons are already calling for a moratorium in countries that have already taken the step in the field of RLA. French caution is undoubtedly virtuous... However, this caution should not prove counter-productive as far as research in the fields of general and of course military robotics is concerned. A significant number of projects could thus be developed in the form of exploratory studies. In this way, France would not find itself at the foot of the wall when it is about to lose a capability and would retain the necessary and sufficient room for manoeuvre for the preparation and implementation of the next armament programme. The case of the development of UAVs in France is symptomatic.

- Man at the heart of war

The French armies are concerned to keep man at the heart of the system because this is the spirit of the French art of war. Human contact - the strong point of the French in operations - places the soldier at the center of the war "within the populations" [10], which the robot will never be able to do. The robot has no capacity for fine analysis despite the

current development and advances in artificial intelligence. The robot supports air-land maneuvering and is not indispensable to the success of the mission and the achievement of the major effect of the leaders. In the current state of concepts and doctrine, France cannot accept being overwhelmed by the robot or the machine. As far as military robotics are concerned, France states that it wants to keep man in the decision to target and fire.

The "robotics revolution" is therefore under way, including in France. It now remains to lead it in a cautious way from the point of view of military thought and to translate it at the doctrinal level by very clearly preserving the place of man.

1) Realization of missions initially entrusted to man by machines on the battlefield. Robots can act in land, sea or air space and are remotely operated, programmed or autonomous.

2) Consequence of battlefield robotization, a set of processes that make the execution of an operational task automatic, without human intervention.

3) Taken from a book by Thérèse Delpech: La guerre parfaite.

[4] Improvised Explosive Device.

5) Nuclear, radiological, bacteriological and chemical.

[6] Interim male drone system.

[7] Directorate General of Armament.

[8] Autonomous lethal robots.

[9] Battlespace digitization.

[10] In Sir Rupert Smith's "The Utility of Force".

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