



The Middle East, a laboratory for innovation at the service of ultra-modern warfare

1/2 - BRENNUS 4.0

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Histoire & stratégie

The Middle East is shaken by conflicts or military interventions on its soil, now involving actors at the cutting edge of defence technology.

In fact, this theater has become a showcase for the use of drones and battlefield robots. A drone is an unmanned, reusable airborne vehicle. A robot is its terrestrial counterpart. It is a mobile or fixed platform of variable size and weight that can potentially act as a network. This platform necessarily embeds sensors and possibly effectors to interact with its environment. Powered by different possible energy sources, it operates and manoeuvres with a certain degree of autonomy, which conditions the link with the operation. This conditions the link with the operator (fibre optics, waves, satellite link), decided before or during the operation, for various tasks always at the service of its operator or of Man. This platform is potentially capable of exploiting its own experience feedback to benefit from it in an autonomous mode or in case of interruption of the link with its operator [1]. In this landscape, the United States, through their use or transfer of technologies, and Israel, for its strategic culture and its start-up nation model, seem to be two major players and drivers of robotization in the Middle East.

Israel's delicate situation with its neighbours and the race for regional leadership inevitably bring robotics into the battle. Presented as a game-changer, a breakthrough technology, which, combined with artificial intelligence, represents for some the "fourth most important technology in the world".[2], it is also of interest to other regional/local actors who are embarking on the robotic arms race.

Israel and its neighbours

Israel's strategic culture has been built around the security perception that citizens have of their territory. The country has a modern but small army. Thus, robotics allows Israel to

optimize the human potential for specific missions, leaving to robotic manpower the

energy-intensive or time-consuming tasks to the robotic workforce. Technological superiority is thus a guarantee of survival and creates popular support for military interventions. Over time, the Israeli population has become hypersensitive to human loss, since it is the population that provides the largest contingents of the IDF [3]. The balance of power between Israeli means and those of its neighbours has always been unfavourable. Thus, the revolution in military affairs, which took place in the 1990s, consecrated the idea that human life was superior to equipment. Since the Yom Kippur War, Israel has been developing equipment with the aim of saving human life [4]. Technology was therefore seen as the best means to achieve this end. A national effort accompanied this new philosophy, creating a synergy bringing together the academic, military and economic worlds in order to make the Nation a high-tech start-up. "Carried by defence companies, Silicon Wadi has indeed tended to favour ex-recruits from the army's technological units"[5]. 5] Robotics is seen as a strategic panacea in addition to being a moral surprise on the battlefield, "one that has such a strong impact on the morale of the opponent that he is totally paralyzed".

[6] Through its military leaders, Israel advocates the use of robots as weapons systems. The establishment of robot platoons would be a goal to achieve. The robot should be "capable of securing the main force and participating in combat missions, breaching open routes of advance through alleys and streets and overcoming obstacles (other than minefields in open terrain), handling the task of entering buildings, including breaching, combat and intelligence collection capabilities" [7].

7] According to an Israeli colonel, "We are definitely moving in a direction where autonomous robots will be able to wage war. The intention is to increase the number of robots" [8].

8] All Israeli strategic thinking now involves the use of terrestrial robotics, even if some models are still at the prototype stage or are not yet deployed in operation. Thus, from sensor robots to know and anticipate at the borders or to neutralize mines and improvised explosive devices, to combat robots for operations, the use of robots is a major challenge. rations in deadly tunnels or the urban environment, to engineering robots for land development such as pioneer fronts, Israel has a comprehensive and versatile robotic weapons system. The lethal capacity of the robots, although all are remotely operated, is systematic. The principle of semi-autonomy is also implanted in the robots, allowing them to move without human control, for example, but for the time being the acquisition and processing of targets is the responsibility of the human operator. Thus, the Dogo or the Viper are combat robots designed for counter-terrorism operations. The Guardium and then the F-350, which patrol the borders of the Gaza Strip in particular, are also equipped with lethal capabilities. In addition, the SentryTech fixed border turret ensures permanent surveillance and target acquisition.

During the conference 'Unmanned Systems in Expanded Security Use,' organised by the Israel Institute for National Security Studies in 2013 , a portrait of these future machines was drawn up: 'The robots will operate on land, at sea, and by air, and will gather intelligence, tend to ongoing security tasks, and attack targets in broad battle applications. Though there will be different types of robots, thanks to artificial intelligence

(AI), they will also be able to communicate amongst themselves, and to share information, analyze it quickly, repair themselves if they are damaged, and if they receive the correct command in advance, to open fire on very precise targets. "Alongside these improvements, experts project that, by 2033, swarms of robots will be able to collaborate with practically no human involvement - 200 items, made up of 50 different kinds of devices, will be highly effective and reliable. 75% of the experts who participated in putting together the forecast estimated that, by 2028, technology will have reached the point that there will be self-healing materials; 72% believe that in that same year, unmanned devices will have the ability to fully camouflage themselves in daylight; and 66% believe that some of the devices will be able to change shape in order to fulfill missions that they have been programmed to perform" [9]. 9] Thus, robots should be able to operate in an intermixed environment, in order to engage previously registered targets; they would also be able, by 2033, to evolve into swarms and even repair themselves.

The advantages on the ground of the robots deployed by Israel are undeniable. Border surveillance and land-use planning are tedious yet necessary tasks that consume human energy. However, these robots remain subject to the human eye and decision embodied in the operator's actions. The possibility of gaining mass, in terms of manpower, for saturation operations is also attractive for the Hebrew state. Thus, on 21 January 2019, Israel used kamikaze drones to neutralise Syrian air defence systems [10].

States such as Iran or Turkey have also produced military ground robots, underlining the operational added value of such tools in the army. In particular, Iran has developed a combat and reconnaissance robot called Nazir. During the military exercises of the Islamic Revolutionary Guards [11] in 2015, two other models could be seen. Their names remain unknown but it is a turret equipped with a 7.62mm machine gun and equipped with several cameras, both night and thermal. The second one is a combat robot that looks strangely similar to the American MAARS. On a crawler, the robot carries several sensors with a modular armament carrying a 7.62mm machine gun [12].

1] RIEUTORD Dylan, Les robots terrestres parmi les hommes, Paris, L'Harmattan, 2017, 250p.

[2] SCHWAB Klaus, The Fourth Industrial Revolution, Portfolio Penguin, 2017, 192p.

3] According to Pierre Razoux, Tshahal's theoretical strength in 2012 (approximately the same in 2019) would be 177,000 active personnel for 465,000 reservists. Pierre Razoux, "Tshahal on all fronts. L'armée israélienne dans l'incertitude stratégique", Focus stratégique, n° 45, July 2013.

4] The Merkava was developed with this in mind.

5] Israël : les limites de la " Nation start-up ", LesEchos, 18 April 2018, Available online: https://www.lesechos.fr/18/04/2018/lesechos.fr/0301556459720_israel---les-limites-de-la---nation-start-up--.htm, Accessed 2 March 2019.

6] GAL YAKOVLEFF Michel, Tactique théorique, Economica, 2nd edition 2009, 702p.

7] COL SHELACH Atai, "High Time for Ground Robotics", IsraelDefense, 2016, Available online: <http://www.israeldefense.co.il/en/node/27994>, Accessed 20 March 2018.

[8] <https://www.tsahal.fr/minisites/technologie-et-innovation/les-robots-soldats-du-futur/>, Accessed 20 March 2018.

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[11]<https://www.tasnimnews.com/fa/news/1393/12/07/666803/%D9%86%D8%AE%D8%B3%D8%AA%DB%8C%D9%86-%D8%AA%D8%B5%D8%A7%D9%88%DB%8C%D8%B1-%D8%A7%D8%B2-%D8%B1%D8%A8%D8%A7%D8%AA-%D8%B1%D8%B2%D9%85%DB%8C-%D8%B3%D9%BE%D8%A7%D9%87-%D9%BE%D8%A7%D8%B3%D8%AF%D8%A7%D8%B1%D8%A7%D9%86>

12] <https://www.aparat.com/v/Mbmqx>, Accessed 20 March 2018.

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