

## Make in India boost: Indian army may procure more Akash missile systems from DRDO

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The Indian Army is likely to order another batch of Akash missiles, India's first indigenously built surface-to-air missile developed by the DRDO. The Indian Army, which has shown immense interest in the Akash missile system, is very satisfied with its operational capabilities and performance, reported The Hindu. Speaking to the media Lt. Gen Parminder Singh S Jaggi, Director General, Army Air Defence had said that the defence forces were fully satisfied with the performance of Akash system and that they were also intending to enhance its performance.

However, it was also reported in 2016, that the Indian Army had rejected the indigenously built Akash missiles. The Indian Army in 2016, had said that it would not procure more Akash missiles and that it would instead go for the Israeli quick reaction surface-to-air missiles (QR SAMs). It had said that the Akash defence missile systems had not met its operational requirements in defending enemy air attacks in the forward areas. But, the Indian Army today seems to be convinced by its capabilities and is likely to procure more missile systems, reported DNA. The Indian Army continues to maintain the existing order for six firing Akash batteries with hundred missiles each and the deal was fixed for Rs 14,180 crore.

Akash missile is a medium-range surface-to-air missile which can simultaneously engage multiple targets in all kinds of weather conditions. The Akash system features a launcher, a missile, an integral mission guidance system, autopilot system, C4I centres, and also a multifunctional radar. Its system is also equipped with batteries with control centre and radars which help in tracking targets. For further efficiency, the system is also integrated with a self-destructive device. The missile launched from this system can fly at a supersonic speed ranging from 2.8 Mach to 3.5 Mach. Its range capability is approximately 25 km. The Akash missile is being developed by the DRDO under the integrated guided-missile development programme (IGMDP). Inducted first in the May 2015, Akash missile system has faced many difficulties, but has emerged as one of best surface-to-air missile system after it was successfully tested in December 2017.

<https://www.financialexpress.com/defence/make-in-india-boost-indian-army-may-procure-more-akash-missile-systems-from-drdo/1160898/>

## A big bang explosion in arms business

*The laboratories around the world are abuzz with swarming drones, robotics, AI and the Internet of Battle Things. Are we in step?*

*By Manish Kumar Jha*

In October 2016, the Department of Defence, the Strategic Capabilities Office, partnering with Naval Air Systems Command, successfully demonstrated one of the world's largest micro-drone swarms at China Lake, California. The test was a significant milestone in defence preparedness and was documented on Sunday's CBS News programme '60 Minutes'. It showcased 103 Perdix drones launched from three F/A-18 Super Hornets. The micro-drones demonstrated advanced swarm behaviours, such as collective decision-making, adaptive formation flying and self-healing.

The Gulf War in 1990 had brought to light a new dimension in warfare where smart weapon technology and "intelligent" weapon systems were used extensively. These weapons performed effectively against

designated targets and reduced human casualty. This stealth and precision of modern warfare is going to define the 'future of defence'. And almost three decades later, the laboratories around the world are abuzz with swarming drones, robotics, artificial intelligence and the Internet of Battle Things.

As the Director General of the Society of Indian Defence Manufacturers (SIDM) Lt. Gen. (Retd) Subrata Saha points out, "We are talking about the precision weapon systems here and the emphasis is more on stealth to achieve more with less and your robust ISR (Intelligence, Surveillance and Reconnaissance) mechanism that defines the future of defence technology per se. And that is going to drive the business of defence with the most critical and necessary components that would also have an outreach and application beyond defence." How ready are we? According to a report by the International Data Corporation (IDC), the global spending on robotics and related services will more than double by 2020, growing from \$91.5 billion in 2016 to more than \$188 billion then. Defence will absorb the major chunk of unmanned aerial vehicles (UAVs,) for accuracy in military operation.

Not just a few advance militaries, but a cluster of nations are in the race for the drone. The reason is simple. Even though drones do not exactly come cheap, they still cost less than the life of a soldier. Automation has myriad applications in warfare, be it to manoeuvre missiles or to reconnaissance over enemy territory with an UAV. Military UAVs are getting increasingly sophisticated, outfitted with low-level autonomy that allows the drones to navigate their way through space without human intervention. China has declared research on artificial intelligence (AI) as a national priority and some striking AI capabilities are being integrated in the military with scale and range. The Chinese do realise that the nature of warfare will undergo a fundamental change with unmanned platforms and autonomous systems. India's Defence Research and Development Organisation (DRDO) has taken a leaf out of China's book, by taking advantage of the home-grown information technology (IT) industry. It has set aside Rs 1500 crore for research on UAVs projects for application across the Army, Navy and Air Force. The DRDO plans to spend Rs 18,000 crore in the current fiscal on both existing and futuristic projects. In February the DRDO carried out test flights of its Rustom 2 drone, a medium-altitude long-endurance unmanned aerial vehicle at Chalakere in Karnataka's Chitradurga district. Rustom 2 is being developed on the lines of predator drones of the United States to carry out surveillance and reconnaissance (ISR) for the Armed Forces with an endurance of 24 hours.

### **Future of Defence**

The DRDO has of late come up with noteworthy and startling new-age technologies in its 'Future of defence' project. The integration of AI and related technologies are being liberally integrated in the next generation Unmanned Combat Aircraft (UCAV) Ghatak and iSWIFT (Stealth Wing Flying Testbed). Besides, Cyber warfare will assume a far greater importance, and cyber adversaries will have to be tackled with AI.

Internet of Intelligent Battle Things is the emerging reality of warfare. A variety of networked intelligent systems – things – will continue to proliferate on the battlefield, where they will operate with varying degrees of autonomy. Intelligent things will not be a rarity, but ubiquitous on the future battlefield, says Alexander Kott of the U.S. Army Research Laboratory in a widely acclaimed research paper. Thus, military can have many applications similar to the commercial ones derived from the Internet of Things (IoT). Be it in critical infrastructure, industrial control, or consumer durables, IoT systems are similar in data collection, distribution, feedback and analytical technologies. In a report titled, 'Internet of Things (IoT) in Aerospace & Defence Market Forecast 2017-2027,' the global agency, Vg-Defence estimated the global IoT market in the aerospace and defence sectors to be \$22.6 billion in 2017.

In the spheres of aerospace and defence, IoT devices connect aircraft, systems and people to the Internet to help improve production processes, management efforts and help enhance productivity. The report projects IoT sales in aerospace and defence for the next ten years, taking into account the businesses of the world's leading defence contractors, like BAE Systems, Boeing Co., General Dynamics, Lockheed Martin and Northrop Grumman Corp. At the moment developing military capabilities with futuristic, next generation technologies seems to be the sole compulsion of the DRDO. A convergence must occur between the military, industry and academia, though, for a competitive tempo in next generation defence R&D.

<http://businessworld.in/article/A-Big-Bang-Explosion-In-Arms-Business/09-05-2018-148663/>