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BELOW: Work on the technology and platform will continue in the wake of the successful demonstration program.

LEFT: The work done by BAE Systems Australia and the Army on the M113 autonomous trial saw them win their Essington Lewis category of Support/Services this year as well the Prime contractor trophy.

KEEPING THE M113 RELEVANT AS UNMANNED PLATFORMS

EWEN LEVICK | SYDNEY

IN September 2019, BAE Systems Australia announced that it was working alongside the Australian Army to convert two M113 armoured personnel carriers into autonomous vehicles. The purpose was to help Army understand how autonomy will change the future of war.

“One of the really important pieces about the M113 program is it’s actually not about the M113 at all; it’s really about supporting Army to understand how autonomy can change the face of the land battle space,” Natalie Waldie, Program Manager Technology Development, said to *ADM*. “The M113 was really a convenient vehicle that we proposed as an experimental platform to demonstrate autonomy.”

Engineers and technicians at the company’s Edinburgh Parks facility fitted out the two vehicles with a Vehicle Management System (VMS) containing the technologies for autonomous guidance, control and navigation of the M113. This VMS was a variant of the VMS that BAE Systems Australia has supplied to a range of other programs both in Australia and overseas, including the UK’s Taranis and Mantis unmanned

aircraft demonstrators, and the multi-all-terrain vehicle (MATV) and Digger unmanned ground vehicle (UGV) demonstrators. The conversion took just six months.

“The reason we were able to do that really quickly was because we have this autonomous vehicle management system that BAE Systems Australia has developed over the last 20 years,” Waldie said. “We’ve kitted these systems out to be able to follow a series of way points, and gradually over the next two years, we’ll introduce higher levels of intelligence.”

Now, the vehicles are available to all industry partners in the Trusted Autonomous Systems Defence Cooperative Research Centre (DCRC) on this land program to use as test and demonstration vehicles.

“We’ve partnered with Melbourne University and Adelaide University, as well as DSTG through the DCRC to develop that next generation of autonomy,” Waldie said. “So in three years’ time we will have an autonomous asset that can independently



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manage a mission with multiple competing objectives, understand and interpret its environment, and cooperate to deliver an overall mission objective.”

Ultimately, the goal is to achieve a network of autonomous vehicles that can deliver tactical effects ranging from casualty evacuation to electronic warfare.

“Autonomy doesn’t achieve what it needs to unless you can effectively integrate it into your overall battle space CONOPS, and that’s really what we’re exploring with Army,” Waldie said. “We’ll work with Army as Red Ochre Labs to be their partner, to develop and mature the technology in an affordable, efficient and rapid way, ready for when Army to go to an acquisition program to acquire the capability that they know they need.”