



Platooning could be an answer for some long-haul problems in the mining industry

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Auto-mate solutions and implementation manager Damien Williams warned it's not a catch-all solution



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In its simplest form platooning involves having a manned "pilot" vehicle guiding a convoy of several semi-autonomous vehicles.

On the face of it platooning could appear to be a more cost-effective way to introduce automation to a mine site.

However, Auto-mate solutions and implementation manager Damien Williams warned it was not a catch-all automation solution.

Platooning works best where there are long hauls involved or where the operational flow is conducive to having a big flow of material at the one time.

It is already being used in other jurisdictions for logistics purposes, shipping cargoes such as food rather than ore.



Given the automation involved it is likely any platooning efforts in Australia will have to start on private roads.

One possible use for platooning is in the Western Australian iron ore industry.

Iron ore mining is really a bulk logistics game that relies on being able to move large amounts of iron ore as efficiently as possible. That is why the majors all have huge rail networks.

However, several operations have started and have not had the mine life or the reserves to justify rail line investments. They instead use quad-trailer road trains to take the iron ore to port using private haul roads.

It is less efficient than rail haulage, however, it can make smaller ore bodies more economically viable.

Platooning could be a way to optimise this form of road haulage.

Imagine a light vehicle leading four or five of these quad road trains. It will not be as efficient as a train hauling 100 wagons, however, the automation in the trucks will help optimise their operation. There is a fatigue management benefit too because there is only one driver instead of several.

Miners are also trying to reduce the number of workers on site. Platooning could be a way of doing that too. With platooning one operator is essentially controlling several trucks at the same time. It is an immediate labour saving and safety boost, and can help address the longer-term labour shortage projections.

Williams said another use could be to send parts out to a remote workshop location.

In that example one driver would lead a convoy of several vehicles to collect the parts from the warehouse and then travel back with them to the warehouse.

"One of the things the convoy does is it takes away a lot of the complexity around traffic management," Williams said.

"With an autonomous vehicle if it comes up to an intersection, you have to have some intelligence around how it deals with that intersection.

"If you have a pilot vehicle making the decision for you, you reduce the autonomous intelligence you need."

However, Williams cautioned against thinking of platooning as "automation-light".

"The first challenge with platooning is that sometimes you are going to have the perception that it will have a low cost," he said.

"If you are looking at a pilot vehicle driving supplemental vehicles you will reduce complexity.

"But if the second and third vehicles are still using automation you will still need to have object detection and you're still going to need tele-remote capabilities for camera viewing."

The next challenge arises as the mine looks to go to different stages of automation.

"What's the real purpose?" Williams said was a question miners should be asking themselves.

"Another challenge we see is mines starting off with using a manned light vehicle as the pilot vehicle and then deciding to go to an autonomous light vehicle.

"If you're going to that stage, why not make all the assets autonomous?"

Williams points out that making the pilot vehicle autonomous will require an investment in communications and other infrastructure and once that infrastructure is in place, it does not matter if there is one vehicle or several vehicles using it.

"If you're going to all the effort of putting in all the complexity for an autonomous light vehicle it's little extra complexity for the rest of the fleet," he said."

Williams said Auto-mate was working with some industry partners around what their business case and value was.

"What is going to turn the dial for you?" he asked.

"Is it a big platoon to reduce staff costs? Is it material movement? Is there one big truck that can do the work and then automate that rather than bring in a platoon? What is going to turn the dial for you?"