

Pilbara miners set to automate

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The mining industry is on course for increased automation and digitalisation, with some anticipating the coming of the 'digital mine'. Notable progress is being made in Western Australia

Digitalisation and automation are twin forces spreading across physical commodities, following the path cut by the financial sector, and mining could be the next to fully embrace the revolution. The shift to automation is different for each industry. For miners, it involves the replacement or retrofitting of particularly heavy machinery and the covering of long distances from mine **to port, as well as the familiar pairing of remote data collection and analysis.**

Newport Consulting's Mining Business Outlook Report 2017-18 sees mining as the next global commodities segment to embrace automation. The report points at the increasing use of drones in prospecting and the penetration of difficult underground mine passages as evidence of growing automation across the industry. It also calls on industry leaders to prioritise upskilling, suggesting that miners will otherwise not be able to fill a growing skills gap. The gap anticipated is the number of technical staff trained for future roles requiring the ability to handle data analytics and the remote operation of robotic machinery and vehicles.

Rio Tinto is among the miners pushing forward with the automation of Australia's iron ore sector, having already deployed around 85 driverless haul trucks in Western Australia's Pilbara region. The company will expand its fleet to 100 later this year and notes that since first trials of the driverless trucks in 2008 the fleet has moved more than 1bn t of ore. The trucks, supplied by Japan's Komatsu, navigate using precision GPS technology and steer around obstacles using laser sensors and radar technology.

Automated functions employed by Rio and other companies mining in Western Australia also include driverless freight trains and extraction machinery. Rio's move to converting all 200-plus of the locomotives it uses to transport ore from its 16 Pilbara

mines to ports at the coast is underway. The company successfully completed its first autonomous rail journey of more than 100km last October and expects to have made considerable progress towards broader automation by the end of this year.

With this process of automation set to continue and spread, it is clear to see why some are calling for upskilling to data-driven, remotely operated mining ahead of more widespread adoption. Rio's current approach to addressing the coming skills gap includes a partnership signed with Western Australia's government and TAFE. As part of the deal, Rio has pledged A\$2mn to the development of vocational training designed to raise current employees' potential to manage data analysis, advanced IT systems and robotics.

The growing automation of mining functions is sure to bring considerable change to the industry's human resource profile, driving demand for data analysts and staff with experience of robotics. The human factor in mining will always remain, but perhaps most crucial will be finding individuals with the ability to marry the growing use of technology with more traditional mining methods & processes. The demand for such individuals will only seek to increase as the value-add of technology becomes a must for all mining participants, not just the majors.



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