

KIBALI – AN AUTOMATION FIRST IN AFRICA

The Kibali gold mine in the Democratic Republic of Congo (DRC) is not only one of Africa's newest and largest gold operations, it has also recently claimed the mantle of being the first automated underground mine on the African continent.

It was a double milestone as Kibali was also leading mining contractor Byrncut Offshore's first ever implementation of automation in to its fleet of mining vehicles.

"It is something that has been going around the industry for a lot of years, but it was important for us however, to find a system that works for us," Byrncut Offshore Maintenance Manager David Cornish said.

"That was our main interest in automation; reducing the damage cost to our machines, therefore increasing our efficiency."

Automation – the process of replacing human labour with machines – was originally driven by the desire to increase safety but in later years, has been driven by the pursuit of operational efficiency.

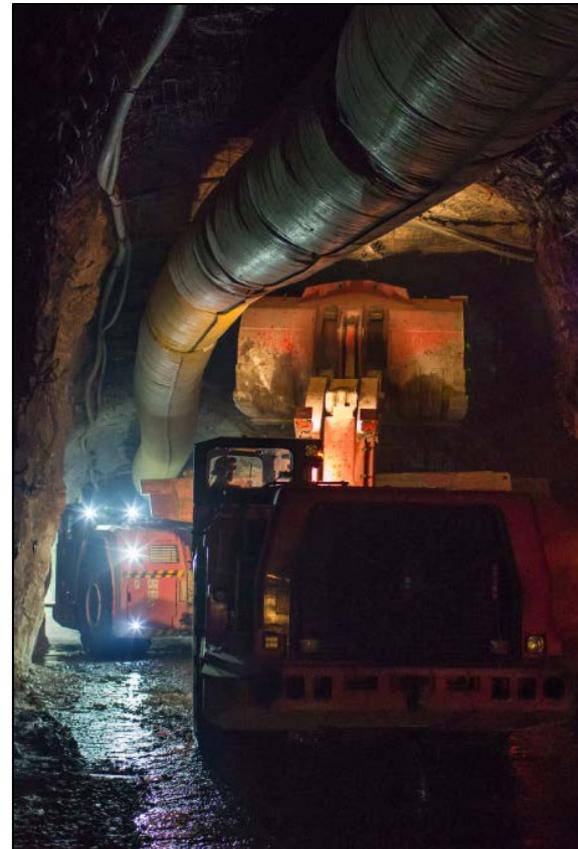
In recent years however there have been too many cases in automation application where the much sought after operational gains have been dashed by higher capital and operating costs - without any material gains to efficiencies.

Despite this Byrncut Offshore knew there were gains to be made and the size and scale of Kibali influenced the company to tender for automation to be incorporated into its underground mining fleet.

"The decision was to do with the technology becoming available and Byrncut Offshore wanting to remain on the cutting edge of technology. It is one of our selling points in maintaining industry leadership in contract mining," Cornish said.

Byrncut Offshore had used teleremote technology in previous contracts. While the company enjoyed the increase in safety - operator visibility and useability was reduced by having to operate machinery in very constricted space, via a video screen and this resulted in increased maintenance costs through accident damage.

Australia's Murray Engineering's latest automation offering – laser guided, point-to-point tramming – was the answer to Byrncut's teleremoting concerns.



“This technology became available through Murray and we thought we would give it a go and make it work. There are plenty of people who have tried automation and failed, but we were determined to ensure success – and we have,” Cornish said.

Murray Engineering has been building its automation offering for the past five years, headed by Automation and Control Systems Manager Luke Clements - with close to 20 years’ experience in mining automation - spearheading the division.

Clements said Murray Engineering soon picked up the sole Australasian distribution agreement for leading Canadian technology company Nautilus International, which is the building block for Murray’s automation systems.

“We are the sole Australasian distributor for Nautilus, but we also deal with other technology providers and OEM’s to ensure we can offer total automation packages and will deliver tailor made solutions and packages to suit the need of our customers. Personally I don’t believe there is a one-size fits all package that suits everyone,” Clements said.

Four years prior to winning the contract to automate Byrnes Offshore’s mining fleet at Kibali, Murray Engineering delivered its first automation project for the Waihi Gold Mine in New Zealand.

“That was the first point-to-point automation system in New Zealand and the first Nautilus automation install in the world,” Clements said.

From the learnings at Waihi, Murray refined its product offering and was successful in securing Byrnes Offshore’s automation contract, not only on price, service and support, but the adaptability of its offering.

“Byrnes run a mixed fleet of machines; they use our automation on Sandvik, Caterpillar, and Atlas Copco machines. By contrast using OEM automation systems means that Sandvik systems can only be run on Sandvik machines, Caterpillar on Caterpillar, Atlas Copco on Atlas Copco machines for example.”

“That is one of our major selling points. And of course that means that we can take it off one machine and install it on to another – it is transferable technology,” Clements said.

“Another major advantage is in its perceived simplicity. With fewer components than our competitors we have been able to keep maintenance to less than 50% of others whilst retaining high reliability, which is essential when setting up systems in such remote areas as Kibali in Central Africa.”

Murray Engineering travelled to the DRC over one year ago and automated Byrnes’ first underground loader within three weeks, despite the logistical and visa issues associated with expats operating in the DRC. The work is ongoing and Clements said that Murray engineers were back at Kibali recently to fit a system to and train the operators of a second Sandvik loader and to train their operators.



“Our work at Kibali is ongoing because it is potentially going to be one of the biggest underground mines in Africa,” Clements said.

Cornish said that the Murray Engineering installed automation systems have been a resounding success and positive results are being seen already; year-to-date, Byrnegut is 25% above forecast production tonnes, with no increase in operating costs.

“Our teams enjoy using it. At the moment the operators themselves are saying it is great because it reduces their fatigue. They can flick a switch between normal teleremoting, a guidance system, or full automation,” Cornish said.

“With the reduction in damage, we are expecting that in the next year or two to see our comparative maintenance costs reduce over time. This of course will lead to less down time of machines.

“We will be using Kibali to demonstrate to other people how well automated mining can work when executed correctly.”