



MCA Awards 2018 Highly Commended

International

Proudfoot with Rio Tinto (Oyu Tolgoi)

Global mining company Rio Tinto is developing the vast Oyu Tolgoi (OT) copper mine project in Mongolia. Over 80% of its total value lies 1.5km underground. In the biggest financial undertaking in Mongolia's history, the \$5.5bn OT project will become one of the largest underground mines in the world.

As underground construction became more complex, OT realised its existing project management systems were not robust enough. They needed a management operating system (MOS) - a set of tools, meetings and behaviours used to manage people and processes and deliver results.

Proudfoot created and implemented a bespoke, state-of-the-art MOS, designed to work in conjunction with an integrated planning process (IPP). The IPP optimises the allocation of space, time and materials across more than 20 practices, recognising any constraints or conflicts on the schedules and resolving them. It helps deliver the project to the master schedule while:

- prioritising safety
- removing complexity
- producing better productivity and
- creating behaviours that ensure compliance.

Ultimately, it frees up supervisors to focus on outcomes rather than processes.

Some of the challenges we faced include:

- **The sheer cope of the project.** The mine's deposits lie over 1.5km under the Gobi Desert over an area of 12km. The mine is expected to reach full capacity in 2021, employing 3,000-4,000 workers on site, so we factored the development of a 'city' - with facilities, roads, airports etc. - into the MOS.
- **The remote location.** Mongolia's capital Ulaanbaatar is 550km away from OT. Temperatures can range from -30 degrees in the winter to 40 degrees in the summer. Proudfoot's team was international (from the US, South Africa, Canada, UK, France and Spain). We worked on a 4+1 rotation pattern, spending four weeks on location followed by a one-week break. Each trip to site took up to 40 hours.
- **Cultural differences.** Almost 90% of the project's current population of 3,000 is Mongolian and the international workforce all have different approaches to work. Implementing the MOS was like creating a language that everyone could share.



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- **Promoting a One Team mentality.** We designed the MOS to work across silos/teams, changing thinking to 'What's best for the business'.

We overcame these challenges and more to deliver:

- an effective, adaptive MOS/IPP for OT that scales up as work progresses - the first such system for an underground mining project of this size.
- the safest operation in Rio Tinto's underground mining divisions.
- a MegaMine 2.0 board game to train leaders (about 120 people) that worked so well it was rolled out to the entire workforce (currently about 3,000 people). We have now designed a MegaMine 2.1.
- work schedules being made 48 to 72 hours and even one week in advance, when the standard for the mining industry is one day.
- a project that is on time and budget.

This project is helping to transform Mongolia's economy. Today, the mining industry accounts for nearly 90% of exports and contributes about one third to nation's GDP.