OPTIMISING MINE SITE COMMUNICATIONS:
RIO TINTO'S 30-YEAR JOURNEY WITH P25 TRUNKED SOLUTIONS

Background and challenges

Rio Tinto is a leading global mining and metals company, known for its extensive operations in various commodities like iron ore, aluminium, copper, and diamonds. They initially relied on a conventional analogue communication system, which efficiently served their needs when they operated a limited number of mine sites. However, as their operations continued to expand to eventually encompassing 15 working sites, challenges started to emerge.

The existing system required additional conventional repeater infrastructure with the addition of each new work group. This not only incurred significant costs but also led to the depletion of available frequencies, posing limitations on scalability and efficiency.

Solution

Following a detailed evaluation of communication solutions, Simoco were able to define and implement a cost-effective upgrade path to P25 Phase 1 trunked technology. This involved integrating a P25 option board into the existing SRM mobiles. Over several years, Simoco has been working with Rio Tinto in the successful roll-out of the complex solution.

These are some of the challenges Rio Tinto faced:

Scalability

With the expansion to 15 working sites, spanning an area as large as Spain, the conventional analogue system required frequent additions of repeater infrastructure, leading to escalating costs.

Frequency exhaustion

The continual need for additional infrastructure depleted available frequencies, hindering further expansion and operational efficiency.

Maintenance complexity

Managing numerous conventional repeaters across multiple sites added to the complexity of system maintenance and upkeep.

Key aspects influencing the decision to choose Simoco

Following a thorough review of alternative options, including DMR and TETRA technologies, the client chose Simoco's solution, further solidifying our longstanding partnership. The decision was influenced by their familiarity and positive experience with the SRM mobile radio platform, which had consistently proven its reliability in the challenging mine site environment. Retaining the SRM platform and upgrading the existing fleet to P25 emerged as the most logical and advantageous solution.

Efficiency
Upgrading to a trunked network enhanced channel allocation efficiency, optimising communication resources and minimising congestion.

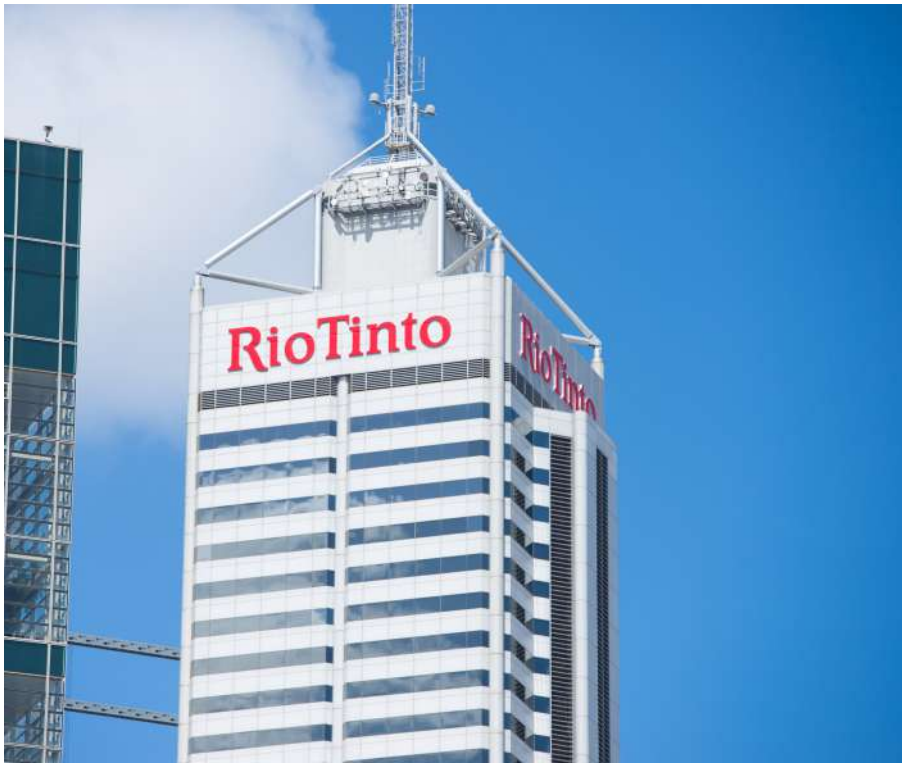
Enhanced features
The integration of encryption capabilities, emergency calling, and location services expanded the functionality of the communication system, bolstering safety and operational effectiveness.

Control
The ability to regulate radios registering on the network provided better control over access and usage, improving overall system management.

Cost savings
By avoiding the need for additional conventional repeater infrastructure, the client realised significant cost savings in both initial deployment and ongoing maintenance.

"Integrating P25 technology with SRM mobiles resolved scalability issues, optimised efficiency, and minimised costs, ensuring a reliable communication system."

Christopher Pennington
Principal Advisor - Site Communications and Mining Systems, Utilities | Iron Ore



The impact of P25 Phase 1 trunked technology upgrade

The strategic decision to upgrade the communication infrastructure to P25 Phase 1 trunked technology not only addressed the challenges posed by scalability and frequency exhaustion but also provided the client with a robust, efficient, and future-proofed solution tailored to their specific operational requirements.

Equipment deployed

Simoco SRM9000 mobiles and SRP9180 portables.