

Nokia Connected Digital Mine

Make Industry 4.0 a reality with Industrial-grade Private Wireless

NOKIA



Make Industry 4.0 a reality

With rapid shifts in supply and demand, stringent environmental constraints, and hefty regulatory mandates, how can mining companies turn the possibilities of Industry 4.0 into operational realities?

The automation of critical processes – from drilling and blasting to hauling and crushing – is vital to increase operational efficiency and mine productivity while improving worker safety.

The trouble is, the Wi-Fi networks that most mines rely on simply weren't built for the demands of business-critical mining use cases – they are characterized by unpredictable performance, patchy coverage and poor security. While TETRA and P25-based radio networks were never built for broadband data or video communications.

To make Industry 4.0 work for your mines, you need industrial-grade, pervasive wireless connectivity.

Around the world, the LTE spectrum is opening up for industry. A market leader in 4G and 5G public networks, Nokia is now pioneering private LTE for industrial networks, enterprises and campuses, offering you:

- **Intrinsic security**
to ensure truly safe and reliable connection
- **Mission-critical reliability**
for near-continuous operations
- **Deep, wide coverage**
to connect everyone and everything
- **Predictable performance**
for industrial automation and real-time asset coordination
- **High capacity**
to easily handle rapidly growing numbers of devices, sensors and data
- **Greater operational control**
and flexibility
to enhance safety and respond quickly to changing business needs
- **Effortless mobility**
built on trusted 3GPP mobile standards

Industry 4.0 reaches beyond technology, it's also about choosing the right partner

Nokia's Connected Digital Mine solution comes with flexible business models and a complete range of professional services to enable you to maximize business value from your private wireless investments. Our experts have worked with 150+ enterprise customers and teamed up with key industry players like Komatsu, Sandvik and NORCAT to digitalize mining operations - making Industry 4.0 a reality.



Increase safety, efficiency and productivity – in open pit and underground mines

Nokia Industrial-grade Private Wireless delivers robust, reliable and secure low-latency connectivity to support safer, more efficient and more productive mines.

Greater network coverage and capacity make it simpler to manage and automate remote operations. An intrinsically secure, high-performance wireless network provides a single, dedicated infrastructure for critical communications and digital mining applications. And with a fraction of the configuration, management and maintenance effort of Wi-Fi networks, private wireless offers a simple way to deploy advanced 4G connectivity now and be ready for 5G tomorrow.

Autonomous vehicles

Gain the wireless network coverage, capacity and reliability to support 24/7 operations.

- Remote operations monitoring
- Autonomous drilling and hauling
- AI decision-making and predictive alerts
- Monitor vehicle tire wear and pressure
- Obstacle and collision avoidance
- 24/7 operations

360° situational awareness

Monitor all mining operations in real time to respond quickly to critical events.

- Industrial location tracking and geo-fencing
- IoT sensors monitor machines, vehicles, environment, and workers' safety/health
- Analytics for video feeds
- Data connectivity from/to machinery, vehicles, staff and IoT sensors
- Mission-critical Push-to-Talk and Push-to-Video communication

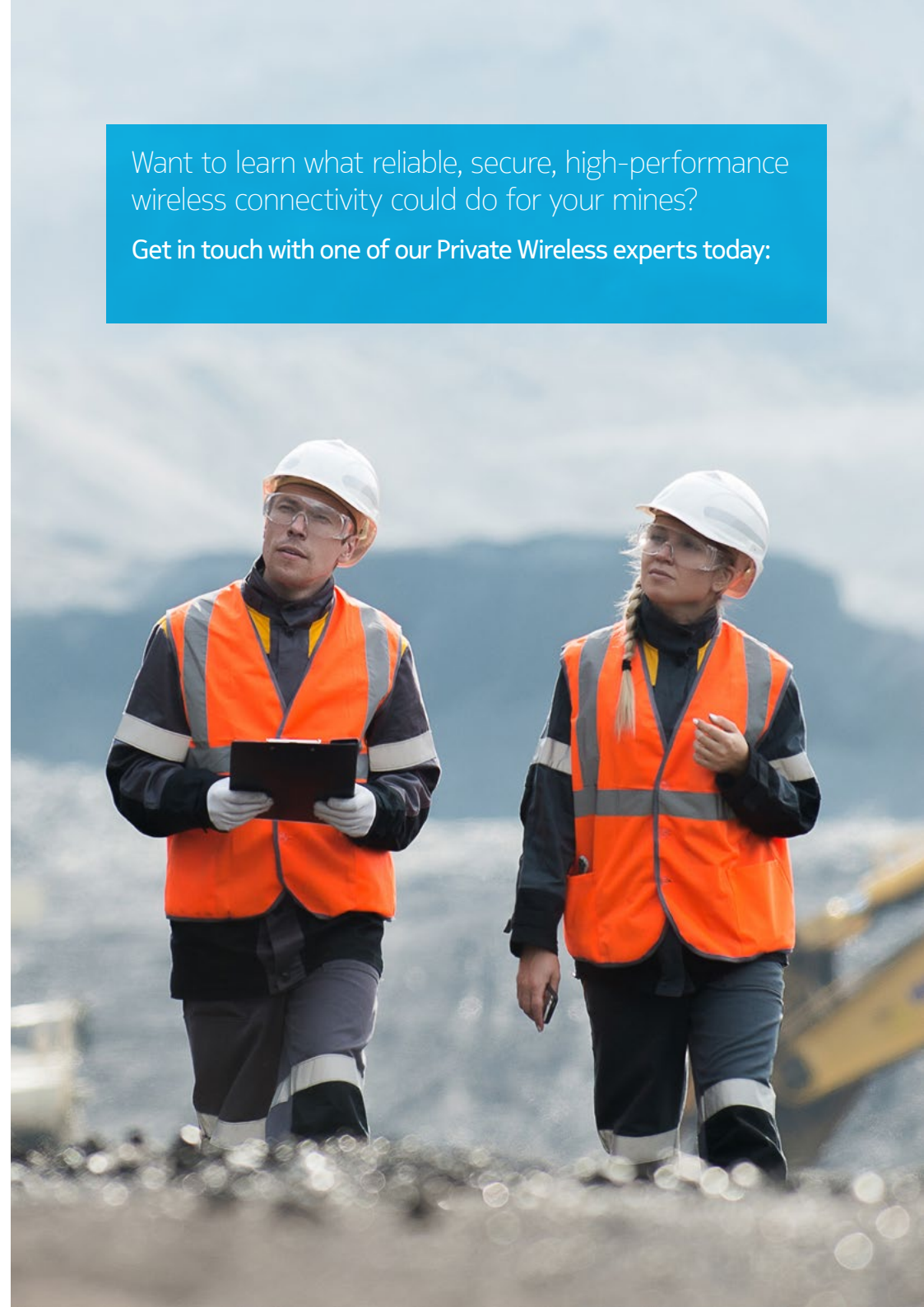
Automation and innovation

Take your digital mine capabilities further.

- New site exploration and prospecting
- IoT and analytics for predictive maintenance
- Air and water management
- Digital twins
- Augmented reality

Want to learn what reliable, secure, high-performance wireless connectivity could do for your mines?

Get in touch with one of our Private Wireless experts today:



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About Nokia

We create the technology to connect the world. Only Nokia offers a comprehensive portfolio of network equipment, software, services and licensing opportunities across the globe. With our commitment to innovation, driven by the award-winning Nokia Bell Labs, we are a leader in the development and deployment of 5G networks.

Our communications service provider customers support more than 6.4 billion subscriptions with our radio networks, and our enterprise customers have deployed over 1,300 industrial networks worldwide. Adhering to the highest ethical standards, we transform how people live, work and communicate. For our latest updates, please visit us online www.nokia.com and follow us on Twitter [@nokia](https://twitter.com/nokia).

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