

PRACTICAL GUIDE · MINING LOGISTICS

AI in mining: what it changes for logistics and supply in Guinea

Around the world, major mining groups already use artificial intelligence to anticipate breakdowns, run equipment fleets and understand their deposits better. In Guinea, these tools are reaching bauxite, iron ore and gold sites. For buyers, maintenance managers and logisticians, the question is practical: what has to change in supply and logistics for these tools to deliver?

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01 Where is artificial intelligence used in mining?

In mining, artificial intelligence is mainly used to make use of the data produced by machines, sensors and field surveys: anticipating breakdowns, optimising truck cycles, controlling ore quality and preparing exploration. Its effects reach logistics, because a forecast is only worth something if the part, consumable or equipment arrives in time.

- Predictive maintenance: machine sensors (vibration, temperature, oil analysis) flag abnormal wear before the failure.
- Fleet management: assigning trucks to shovels, tracking fuel use, cutting waiting times.
- Autonomous or assisted machines: already running at some large mines abroad, rarer in West Africa.
- Drones and imagery: topographic surveys, ore stockpile tracking, inspection of facilities.
- Exploration and geology: analysis of large volumes of drilling and geophysical data.

02 Predictive maintenance only helps if the part arrives in time

Knowing three weeks ahead that an engine or transmission will fail only prevents downtime if the part can be bought, shipped, cleared and delivered to the site within that time. In Guinea, between international freight, the port of Conakry and the road inland, that lead time has to be prepared.

- Link maintenance alerts to purchasing: an alert should trigger a stock check and, if needed, an order.
- Choose the transport mode for each critical part by urgency: air for a part that stops production, sea for restocking.

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- Prepare customs documents for recurring parts in advance: description, HS code, regime for projects under a mining convention.
- Keep safety stock on site for parts whose supply lead time exceeds the forecast horizon.

> Forecasting reduces uncertainty about "when", not about "how long to get it". The supply chain is what turns an alert into avoided downtime.

03 Using wear data to plan purchasing

The same data that warns of a failure also measures how fast bucket teeth, tyres, filters or liners wear. Used well, it lets you move from urgent purchases to planned, grouped orders that cost less to ship.

- Actual consumption per machine and per month, instead of estimates.
- Orders grouped by container, on a schedule known to the supplier and the forwarder.
- Framework agreements for fast-moving consumables.

04 Importing AI equipment into Guinea

Sensors, telematics units, antennas, servers, drones, weather stations: this equipment is imported like any other, with a precise description and the right tariff classification. Some of it needs particular care.

- Radio and telecommunication equipment: type approval or an authorisation may be required; check before shipping.
- Drones: importing and operating them may require authorisation; check with the competent authorities before ordering.
- Lithium batteries: specific transport rules, especially by air.
- Projects under a mining convention: check whether the equipment is on the exemption list.

05 Connectivity and power on a remote site

An AI tool on a mine site needs data to flow back: mobile network, satellite link or the site's private network, and stable power for servers and antennas. On a remote site in Guinea, these needs are handled at project design, with generators, solar power and telecom equipment to source.

06 What we do for you

TransXpress supplies mining and industrial sites in Guinea: wear parts, consumables and equipment, from purchase at the supplier to the site store, customs clearance included. We use

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artificial intelligence ourselves to check our customs files and recalculate charges. Send us your list of critical parts and your target lead times: we will propose the right supply route.

? Frequently asked questions

Is predictive maintenance enough to avoid downtime?

No. It announces the failure, but downtime is only avoided if the part is available in time: safety stock, transport matched to urgency and a customs file ready.

Can drones be imported into Guinea for a mine site?

Importing and operating them may require authorisation. Check with the competent authorities before ordering; we then prepare the customs file.

Is AI equipment for a mining project exempt from duties?

It depends on the project's convention and its list of exempt equipment. We check with you before shipping.

General information guide written by TransXpress. Customs rules and procedures change: every file is checked against the documents and the regulations in force. This guide is neither a quotation nor a commitment.

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TransXpress supports mining, industrial and construction operators in Guinea and on the corridors to Mali and Sierra Leone. A name, a number and a few words are enough: we call you back within 24 business hours.

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