

PART OF THE FUTUREMINE INITIATIVES

TestLOOP

A dedicated, near-surface underground loop for **mining robotics, drones and electric / autonomous machines** — an authentic mining environment for developing, validating and piloting next-generation technology in real operating conditions, without disturbing production traffic.



+35 → +65 m

NEAR-SURFACE DEPTH

Continuous loop

MULTIPLE ENTRY / EXIT

Private 5G

CONNECTIVITY
BACKBONE

Positioning

TRAFFIC & SAFETY

WHAT THE ENVIRONMENT PROVIDES

Repeatable, low-disruption testing

A continuous loop with multiple access points: easy entry, short pilot cycles and repeatable test runs — robotics, drones and autonomous machines exercised again and again, away from production traffic.

Supervised from Callio Nexus

A VR-enabled remote-operating control room oversees the loop. On-site machines and sensors connect to operators above ground or off-site — the foundation for tele-operation and a no-boots-on-level model.

Positioning & traffic management

Precise positioning lets manned and unmanned machines share the same space — fixed and vehicle-mounted reference points, collision avoidance and fail-to-safe behaviour, proven underground and in the open pit.

Charging & power infrastructure

On-site charging and power supply carry battery-electric and autonomous machines through full test cycles, with electrification and grid-integration scenarios available at each member's own pace.

PROJECT TIMELINE · SEP 2026 – DEC 2027

Jul 2026



Development phase opens — members join from the start

Sep 2026



Characterisation, requirements & feasibility

2026–27



Technical & safety validation · 3D / VR digital model

2027



Operating model · member pilots · robotics & drones demo

Dec 2027



Results & next-phase build-out

Part of the FutureMINE R&D cluster

TestLOOP is one of Callio's FutureMINE initiatives — built on the same site, connectivity backbone and remote-operating layer. Pilots run here feed the wider cluster's work on autonomy, positioning, data and electrification, alongside **Zero Entry**, the **Nexus & remote operating model** and the open-quarry / surface testing assets.

PRIMARY CONTACT

Nelli Hautamäki · COO

nelli.hautamaki@pyhajarvi.fi · +358 40 654 0248

CEO

Henrik Kiviniemi

henrik.kiviniemi@pyhajarvi.fi · +358 44 445 7701