A CASE STUDY

Unlocking Five Centuries of Austrian Mining History with AI

How Ekometall and GexplOre transformed a multi-century, German-language archive into the most comprehensive structured exploration dataset ever assembled for a single Austrian land position.

EKOMETALL GEXPLORE GEOLOGICAL AND GEOPHYSICAL SERVICES

June 2026

Vienna, Austria

AT A GLANCE

The Program in Numbers

10,891
documented points of interest identified

4,566
ranked exploration hotspots

21,398
km² area of interest across the portfolio

3,378
historical documents processed end-to-end

1765–2022
source material span, in German and English

7
EU CRMA critical materials represented

Figures shown are current as of 11 June 2026. The dataset is continuously enriched.

CONTEXT

Five Centuries of Records Meet a Strategic Opening

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THE CHALLENGE

Austria's mining history spans the Bronze Age forward.

- Hundreds of thousands of pages of German-language records
- Multiple typographies, including pre-1940 Fraktur scripts
- Hand-drawn maps, manuscripts, scans of scans
- Catalogued at document level, never at content level

Researching one occurrence takes a German-speaking geologist days. A portfolio of ten claims is intractable manually.

THE OPPORTUNITY

Europe needs domestic critical minerals supply, now.

- EU Critical Raw Materials Act, in force since 2024
- Binding 2030 benchmarks for EU extraction, processing, recycling
- Critical materials: Cu, Sb, Co, Ni, W, Ge, Li, and others
- Domestic European primary supply is negligible for most

First-mover position in a favorable, well-permitted jurisdiction has structural value.

THE PARTNERSHIP

Engagement to Operational Platform: Six Months

What previously required several days of archive work by a German-speaking geologist for a single occurrence is now a short working session — with full traceability back to the original archival documents and pages.

Engagement announced

GexplOre selected. Two-phase scope agreed.

Phase 1 build

OCR, translation, extraction, reconciliation, geocoding.

Platform live

AI query platform deployed and exposed to the Ekometall team.

Program complete

Knowledge base anchors active target generation.

PHASE 1

From Archive to Structured Knowledge Base

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INPUT

Raw archive material — PDFs, scans, manuscripts, maps, mine plans, photographs.

OUTPUT

Georeferenced, queryable knowledge base — **10,891** POIs, **4,566** ranked hotspots, **11,394** context places.

Three principles run across all seven gates:

1 Conservative defaults
Never silently merge. Flag, don't normalize.

2 Explicit inheritance
Every inherited coordinate carries a flag.

3 End-to-end traceability
Every claim → source page in ≤4 hops.

PHASE 2

An Operational AI Platform on Top of the Knowledge Base

Natural-language query interface (RAG)

↓

Geographic knowledge graph

Hotspots ↔ context places ↔ documents ↔ source pages

↓

Phase 1 knowledge base

10,891 POIs · **4,566** hotspots · **11,394** context places

3,378 documents · **~44M** words · **30,207** images

WHAT THE OPERATOR CAN DO

Ask in plain English

"Show me antimony occurrences in the Drau project group with strong deposit-type evidence."

Filter spatially

Restrict any query to a claim, project group, polygon, or distance from a coordinate.

Compare across blocks

Side-by-side metallogenic comparison across the portfolio in a single pass.

Export research notebooks

Queries, passages, citations and derived maps as portable per-target evidence packs.

RESULTS

A 9,000+ POI Expansion Against Austria's Public Database

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AUSTRIA'S PUBLIC IRIS BASELINE

~1,500

Approximate sites previously catalogued for the same area

1x

AFTER EKOMETALL × GEXPLORE

10,891

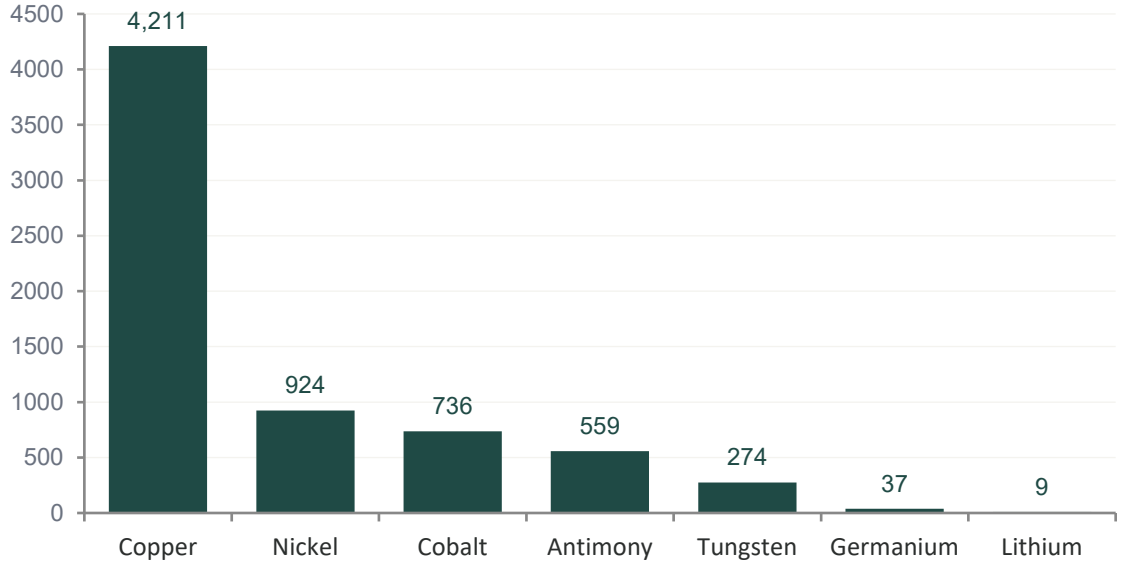
georeferenced points of interest — a more than 7x expansion*

7x+

The expansion is not just a larger count — it is structured, georeferenced, ranked by geological relevance, and traceable to source. Every claim is defendable from an archive page.

**The 10,891 points of interest referenced in this release are historical references compiled from archival sources. They do not represent proven or measured mineralization and are presented for the purpose of exploration target generation and contextualization.*

Direct exposure to the EU critical raw materials list



WHY THIS MATTERS

Seven designated CRMA critical materials in the dataset.

Presence in the archive indicates documented historical reference, not economic mineralization. The bulk of the literature predates modern interest in Ge, Li, and Co as electrification inputs, which means the archive also surfaces under-explored byproduct potential.

Counts reflect an archival snapshot of 11 June 2026.

METALLOGENIC PROFILE

Four project groups, four distinct signatures

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TYROL

Cu-Ag dominant

Kelchalpe · Matrei

Greywacke Zone copper systems. Additional critical minerals exposure via Ni and Co.

DRAU

Polymetallic Cu-Au–Pb–Zn-Sb

Grossfragant · East Tyrol · Finkenstein

Largest and richest project group in documentary terms. Polymetallic Au-Cu-Ag at Grossfragant/EastTyrol/ Finkenstein with antimony as a notable critical minerals contributor.

STYRIA

Fe-Cu dominant

Radmer · Trattenbach

Fe dominant in the Eastern Alpine siderite province. Copper in eastern Greywacke zone and magnesite contribution at Radmer.

NORICUM

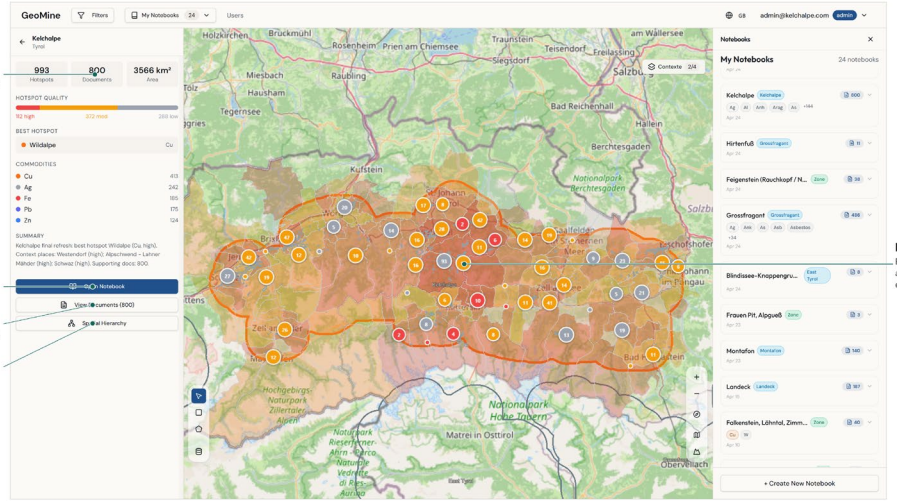
Cu-Pb–Zn polymetallic

Imst · Landeck · Montafon

Carbonate-hosted Pb–Zn signature. MVT-dominant at Imst versus Cu-Ag-Pb polymetallic at Landeck and Montafon.

PLATFORM IN ACTION

From an upstream prospect to a defensible evidence pack — in one session



THE WORKFLOW

1. Hypothesize an upstream prospect from field, geophysics, or geochemistry.
2. Query the platform within a chosen radius and usefulness tier.
3. Read candidate hotspots with source passages, maps, and mine plans.
4. Trace any claim to the original archived source page in ≤ 4 clicks.
5. Export the per-target notebook into the technical workflow.

POSITIONING

An independent QAQC layer over historical evidence

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The historical knowledge base is kept architecturally independent of upstream targeting. For any target Ekometall identifies — by field reconnaissance, geophysics, geochemistry, or any other method — the operator can ask three clean follow-up questions:

SUPPORTED

Is this target supported by the historical evidence?

A high-tier hotspot or a cluster of medium-tier hotspots within the target's footprint corroborates the upstream signal independently.

CONTRADICTED

Is this target contradicted by the historical evidence?

Substantial archive coverage of the area without recording the commodity of interest is a yellow flag worth investigating.

UNADDRESSED

Is this target unaddressed by the historical evidence?

Thin coverage, or no documentary footprint at all. The upstream signal stands on its own — often the most interesting targets.

WHAT'S NEXT

From the archive to active prospects

11,394	**context places** *anchoring the geographic knowledge graph*
4,566	**ranked exploration hotspots** *the operational unit served by the platform*
2,012	**high + medium relevance tier** *approx. 44% of hotspots prioritised directly from the archive*
PROSPECTS	**prioritized for ground truthing and exploration advancement** *validated by the QAQC layer against the upstream MCA workflow*

Prospects selected against a substantially more complete and structured picture of Austrian mineralization than has previously existed in accessible form for any comparable land package in the country.

RESPONSIBLE USE

What the dataset is — and what it is not

- **Not a resource estimate.**
  No figure shown constitutes a mineral resource or reserve. Progression toward resource classification requires modern technical work by qualified persons.
- **A target-generation aid, not a substitute for fieldwork.**
  Historical references must be ground-truthed before being treated as exploration targets.
- **Historical coordinates carry uncertainty.**
  Many occurrences are described by toponym or by reference to a parent geographic feature. Inherited coordinates are flagged in the schema.
- **Usefulness tiers are geological-relevance assessments.**
  The high / medium / lower ranking reflects an automated assessment over the documentary evidence — not an economic potential rating or investment-grade signal.
- **The archive is enriched continuously.**
  Figures shown reflect an archival snapshot of 10 June 2026. Subsequent disclosures may reflect updated values.

LEARN MORE

A foundation for European critical minerals exploration.

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