KoBold Metals Mingomba copper discovery

IMPLEMENTED 2022 ONWARDS · MINING AND RESOURCES · ZAMBIA · BAND B · PARTLY PROVED
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A US exploration company built around AI used its models on a century of records at Mingomba in Zambia and broke ground on a $2.3 billion copper mine in 2026.

ABOUT THIS SYNOPSIS

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AT A GLANCE

AI-native company: built around AI from the start and attempting transformational change. It claims band A; MarLuc grades it on what is evidenced.

AI used: Predictive machine-learning models over historical and new geological data to decide where to drill.

Implemented: 2022 onwards. Grade: band B, Operating model redesign, Partly proved.

Headline result, as reported: Broke ground in April 2026 on a planned copper mine of more than 300,000 tonnes a year, after AI-led exploration of a deposit acquired in 2022

1 · The case

The facts, as reported by the 5 sources listed at the end. Where a source is silent, the field says "Not reported".

Organisation

KoBold Metals. Mineral exploration and development company based in California, backed by technology investors, describing itself as combining AI and human expertise. Mingomba, in Zambia's Copperbelt near the border with the Democratic Republic of Congo, is what KoBold calls its first discovery; Zambia's state investment company ZCCM-IH holds 20% of the project company. Canvas block: 1. Strategy and business model. Also 6. Data and technology, 4. Operations and process.

Business challenge

The challenge. KoBold says the industry is getting worse at finding critical minerals and that what it lacks is information. Its stated goal is to turn exploration into a repeatable science.

How it was addressed. After investing in the project in 2022, KoBold used its platform to bring together a century of exploration records from earlier owners, align them to common coordinates and build a three-dimensional model of the subsurface, per Africa Legal. It drilled against the model's uncertainty rather than on a grid. KoBold then moved to begin construction before engineering studies were complete, per Bloomberg News relayed by Miningmx, and broke ground on 29 April 2026. [1] [2] [3] [4] [5]

Who implemented it

In-house (In-house): KoBold Metals: built and ran the exploration models and data platform. ZCCM-IH (Industry partner): Zambian state investment company holding 20% of Mingomba Mining Limited.

Technology (SEAM pillar E)

SEAM types: T8 Predictive / ML models. Deployment: Not reported. Vendors and products: TerraShed.

Where it was built in: Historical exploration records were normalised, aligned to common coordinates and modelled in three dimensions with new data; drilling targeted the model's uncertainty, per Africa Legal.

What changed

Before: a deep deposit drilled by successive owners over decades, with a JORC-compliant resource of about fifty million tonnes from 2019 to 2021 drilling, per Africa Legal. After: KoBold reports a much larger internal estimate and has started mine development. Independent press reports the groundbreaking and project scale; the internal estimate is not yet compliant. [1] [2] [3] [4] [5]

What it cost

Not reported for the exploration work. KoBold made a $150 million investment in 2022, per Africa Legal. Mine capital need: $2.3 billion to $2.5 billion, per Reuters relayed by Miningmx; a final cost estimate will follow an engineering study.

What it saved

Not reported. KoBold's Africa chief executive said similar projects typically take more than 15 years to reach production, per Bloomberg News relayed by Miningmx; KoBold targets the early 2030s. [1] [2] [3] [4] [5]

Governance and control

ZCCM-IH holds 20% of Mingomba Mining Limited. KoBold's resource estimate has no published independent Qualified Person or Competent Person report, per Africa Legal. Controls on how model outputs drive drilling decisions: Not reported.

S2 · Accountable owner · Not reported
KoBold's Africa chief executive leads the Zambian team; ownership of model-led decisions is not reported. [5]

A1 · Safe use · Not reported
Not reported.

A2 · Human in the loop · Claimed
KoBold says it combines AI with human expertise, with geologists, data scientists and engineers working together. [1]

A3 · Monitoring and assurance · Missing (independent source shows it was absent)
No independent Qualified Person or Competent Person report on KoBold's resource estimate has been published, per Africa Legal. [4]

A4 · Vendor AI · Not reported
Not reported.

A5 · Agent controls · Not reported
No agents described.

A6 · Standards and regulation · Not reported
KoBold's estimate is not yet JORC or NI 43-101 compliant, per Africa Legal; permitting was under way in March 2026, per Reuters relayed by Miningmx. [2] [4]

What worked, what did not, what is unproven

WORKED

– Moving from acquisition in December 2022 to groundbreaking in April 2026, per independent press.

– Reading a century of records from earlier owners in one model, per Africa Legal.

DID NOT

– Not reported

UNPROVEN

– The resource size: KoBold's internal estimate is not JORC or NI 43-101 compliant, per Africa Legal.

– How much of the result came from AI rather than earlier drilling: a JORC-compliant resource existed before KoBold bought the project, per Africa Legal.

– Delivery: the mine is deep and wet, the final cost is not set, and KoBold has not yet brought a mine into production, per Bloomberg News relayed by Miningmx.

– Whether the method repeats at other projects.

Timeline

2019 Geologists drilling the Lubambe Extension ground from 2019 to 2021 produce a JORC-compliant resource that draws bidders including KoBold [4]

Dec 2022 KoBold acquires the project and renames it Mingomba [3]

Mar 2026 KoBold says mine development has started and permitting is under way [2]

Apr 2026 KoBold and ZCCM-IH break ground on planned shaft construction [4]

2 · Grade and SEAM assessment

MarLuc's opinion, made on the evidence above. How cases are graded: marluc.co.uk/case-studies/how-we-rate

Level of change and impact

Claimed: A. Grade: B, Operating model redesign. Proof: Partly proved. Level of change: Operating model.

Operating model change (Level 3, band B), claimed as business model change (band A). The company is organised around AI-led exploration; a changed industry is not yet shown.

Graded B, claimed A. KoBold is organised around AI-led exploration and has moved a deposit from acquisition to construction in about three and a half years. A changed industry is not shown: the resource estimate is not yet compliant, the mine is not built, and KoBold has not yet brought any mine into production.

The SEAM view and lessons learnt

The value here came from joining data that earlier owners each held in part and never read together, then letting the model's uncertainty guide where to drill. For a larger resources company, the transferable idea is to treat legacy records as an asset and to drill to reduce uncertainty. The hard proof, a compliant resource and a working mine, is still ahead.

1. Gather and clean legacy records before buying new data.
2. Publish compliant resource estimates before relying on AI-led claims.
3. Plan the move from discovery to construction as a separate capability.

Evidence

Score 2 of 4. Mixed: independent press (Bloomberg News and Reuters relayed by Miningmx, and an Africa Legal feature) confirms the project and its scale; the AI role and the resource estimate are KoBold's own account.

Evaluation method. Self-reported company account with independent press reporting on project milestones; no compliant resource statement published.

Sources disagree. Bloomberg News, relayed by Miningmx, gives a $2.3 billion project; Reuters, relayed by Miningmx, and Africa Legal give $2.3 billion to $2.5 billion. The two Miningmx reports name different billionaire backers. KoBold's website calls Mingomba its first discovery; Africa Legal records earlier drilling and a JORC-compliant resource on the same ground before KoBold's purchase.

Status. Ongoing: groundbreaking April 2026; shaft sinking expected in early 2027 and first production targeted for the early 2030s.

3 · Original sources

Read these in full. To challenge a fact or a grade, use the contact form at marluc.co.uk or the link on https://marluc.co.uk/case-studies/kobold-metals-mingomba-copper

[1] KoBold Metals: company website
https://www.koboldmetals.com/

[2] Miningmx: KoBold starts development of Zambia copper project (March 2026, citing Reuters)
https://miningmx.com/news/base-metals/2026-03-19-kobold-starts-development-of-zambia-copper-project/

[3] Miningmx: KoBold breaks ground on giant Zambia copper mine (May 2026, citing Bloomberg News)
https://miningmx.com/news/base-metals/2026-05-05-kobold-breaks-ground-on-giant-zambia-copper-mine

[4] Africa Legal: Mingomba, a century of geologists, a century of data, and the machine that read it all at once (August 2026)
https://www.africa-legal.com/profiles-and-features/mingomba-a-century-of-geologists-a-century-of-data-and-the-machine-that-read-it-all-at-once/130167

[5] KoBold Metals: Mingomba project page
https://www.koboldmetals.com/mingomba/

KoBold Metals website: https://www.koboldmetals.com

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