



Connecting and Digitalising the  
Precious Metal Industry

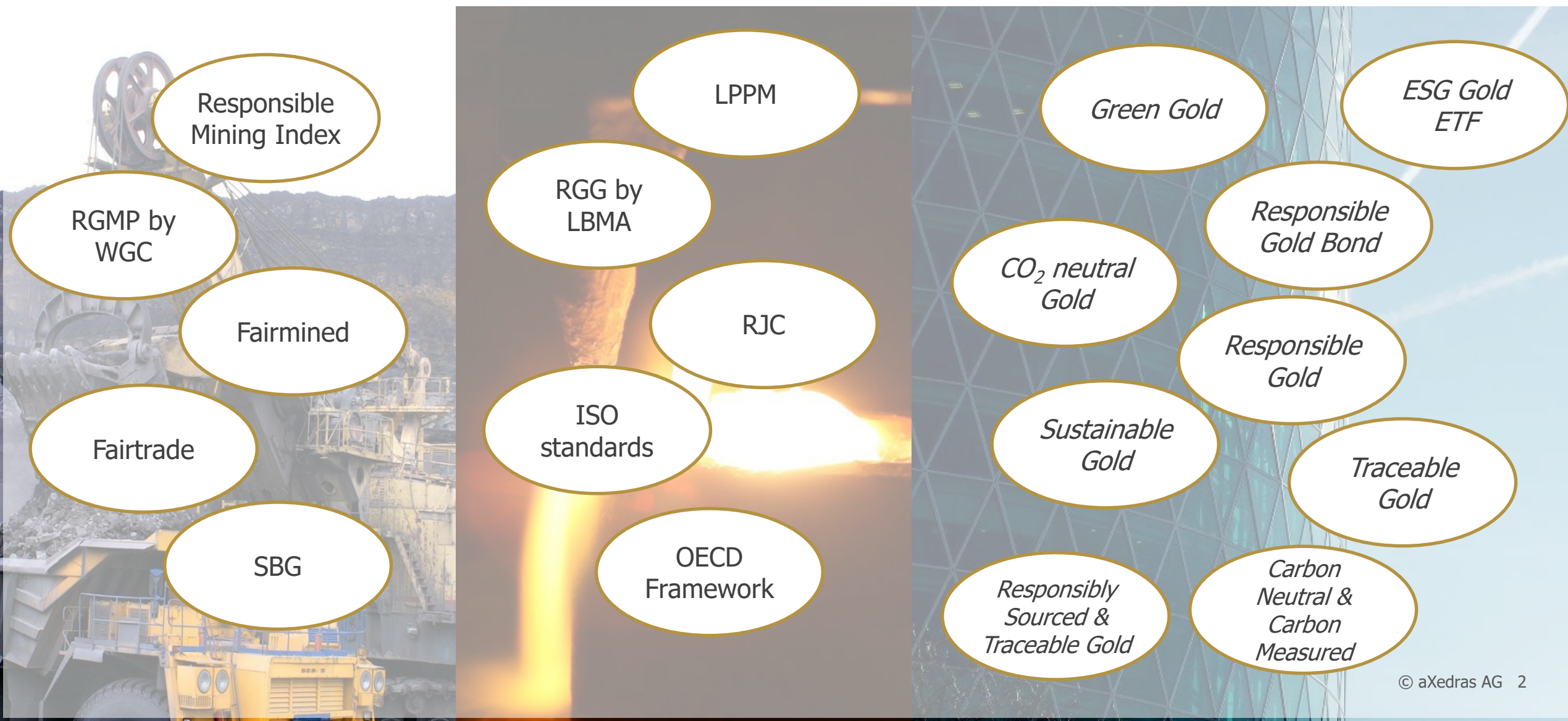
## **Blockchain-based Digital Transformation of the Gold Industry empowers ESG and Transparency for Sustainable Investments**

Big Data and AI for Sustainable Investing – from Biodiversity Risks to Sustainable Gold

Zürich, 2 Nov 2022, Urs Rösli, CEO at aXedras

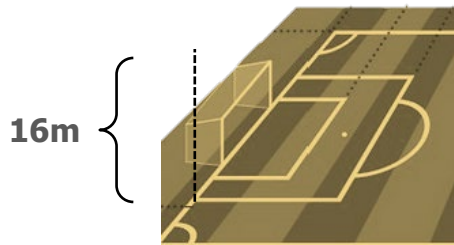
# Connecting and Digitalizing the Isolated Solutions

Despite all these programs, the investor still can't assess the gold's impact on sustainability



# Facts on Physical Gold & the Global Gold Market

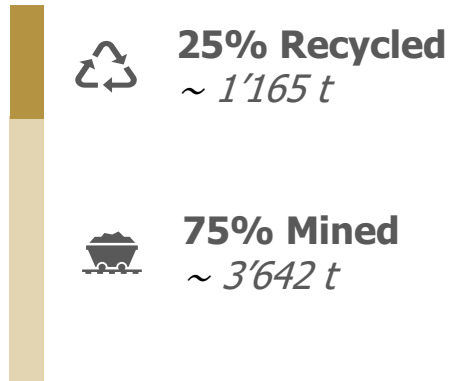
## Total gold ever mined



**205'000 t**

**~11 tn \$**

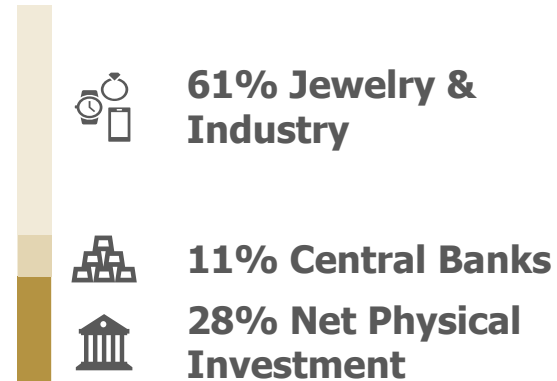
## Gold supply (2022F)



**~ 4'800 t**

**~250 bn \$**

## Gold demand (2022F)



**How much Sustainable Gold remains for financial industry?**



**Lack of Transparency**



**Limited Supply** of transparent & sustainable gold



**Switzerland** as key player

# Facts on Sourcing of 31 Grams / 1 ounce of Gold

## Total gold ever mined



## Ø Mined Gold<sup>1</sup> [oz]

**1.4 t CO<sub>2</sub>e**  
(Scope I, II, III)

**8.5 GJ**

**30 m<sup>3</sup>**

**81 t**

**8 kg**

## 1 Gold [oz]

**> 10'000 km  
by car**

**23'500 kWh**  
6 average Swiss  
households p.a.

**~100 day**  
for one average  
Swiss person

**n/a**



Black & White  
thinking of investors



Mines & refiners are  
improving their ESG  
footprint



Different definitions  
of "Recycled"

# Facts on Sourcing of 31 Grams / 1 ounce of Gold

## Total gold ever mined



## Ø Mined Gold<sup>1</sup> [oz]

**0.8 t CO<sub>2</sub>e**  
(Scope I, II)

**8.5 GJ**

**- 30 m<sup>3</sup>**  
**- 75% Recycling**

**81 t**

**8 kg**

## Range [/oz]

**0.1 to 3.2 t CO<sub>2</sub>e**  
(Scope I, II)

**4.1 to 17 GJ**

**- 6 to 114 m<sup>3</sup>**  
**- 38 to 95% Recycl.**

**53 t in 2014**  
**81 t in 2021**

**4 to 23 kg**



Correlation between  
ESG footprint and  
electricity from  
renewable sources



Different prices for  
different ESG  
footprint?



ESG Premium as  
incentive to become  
more sustainable?



How to prepare a  
traditional asset for  
the **digital era?**



# aXedras in a Nutshell

Independent software provider connecting and digitalizing the precious metal industry



Founded in 2018 and headquartered in **Switzerland**



**Independent software provider** focusing on precious metals



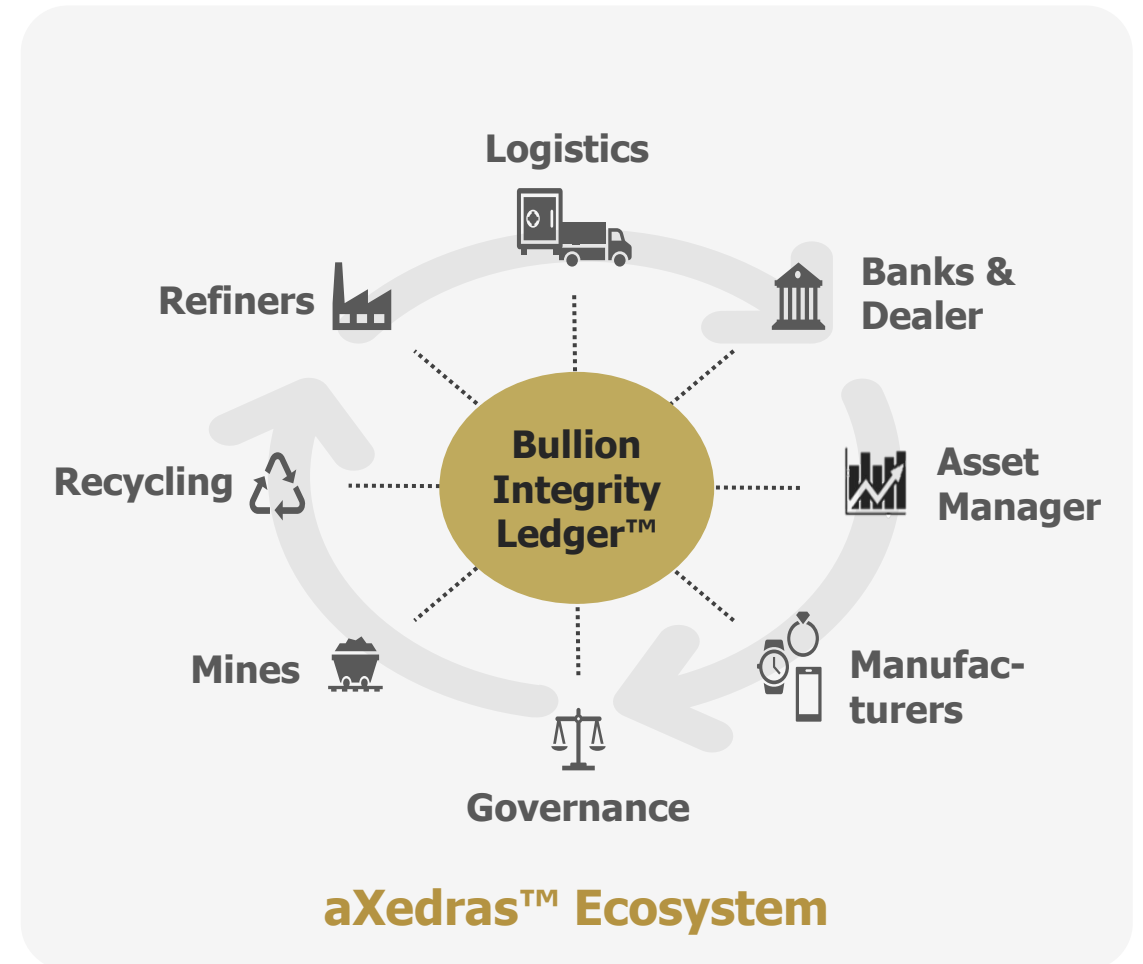
Distributed Ledger Technology / **Blockchain-based solutions** for connecting all stakeholders of industry



Sound **gold market know-how & in-house programming capabilities**



**Industry-aligned** product roadmap

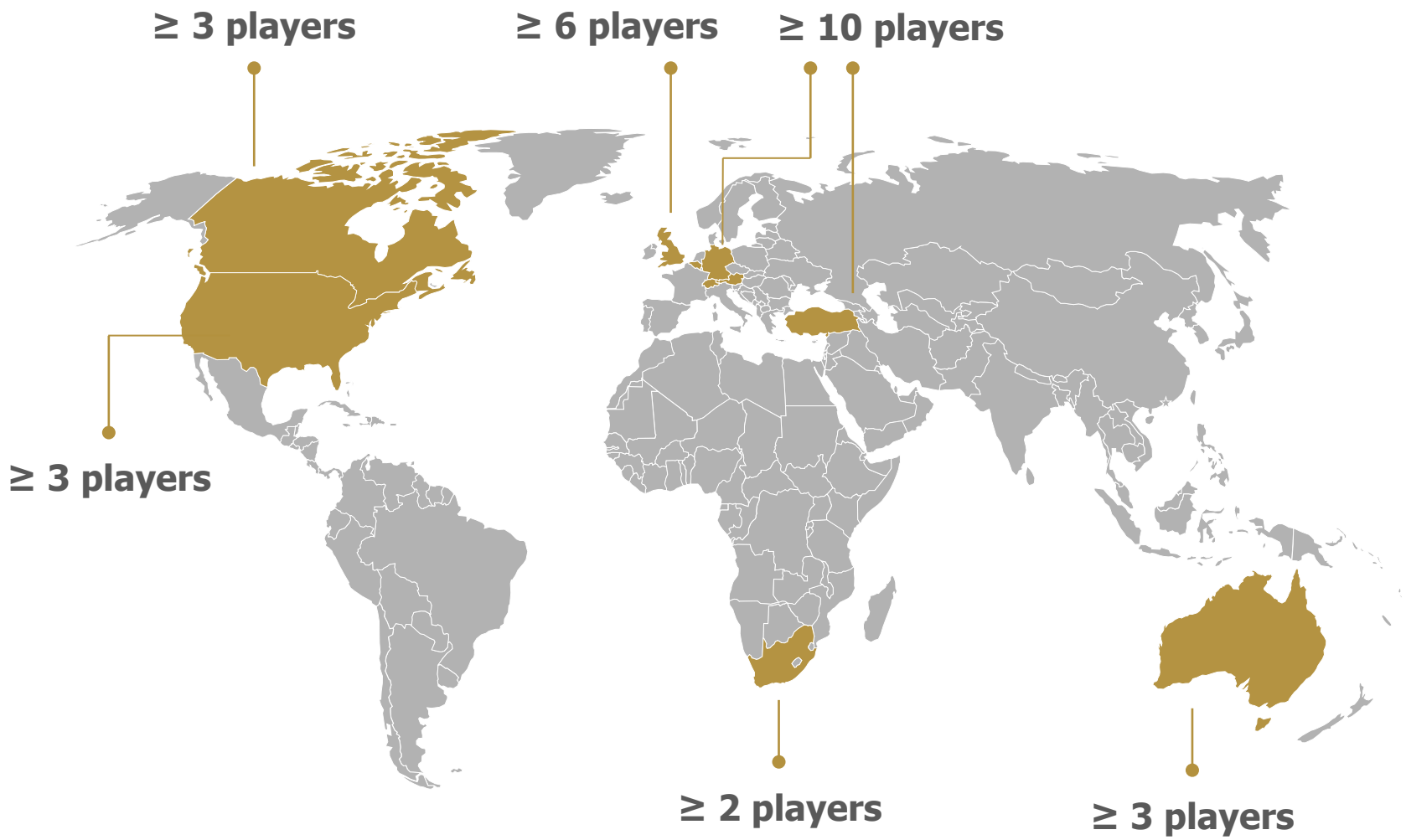


**aXedras' global footprint**

referring to Gold Bar Integrity Pilot with LBMA & WGC

**>30 participants**  
around the globe:

- 7** Mines
- 9** Refiners
- 4** Logistics
- 10** Banks / Dealers



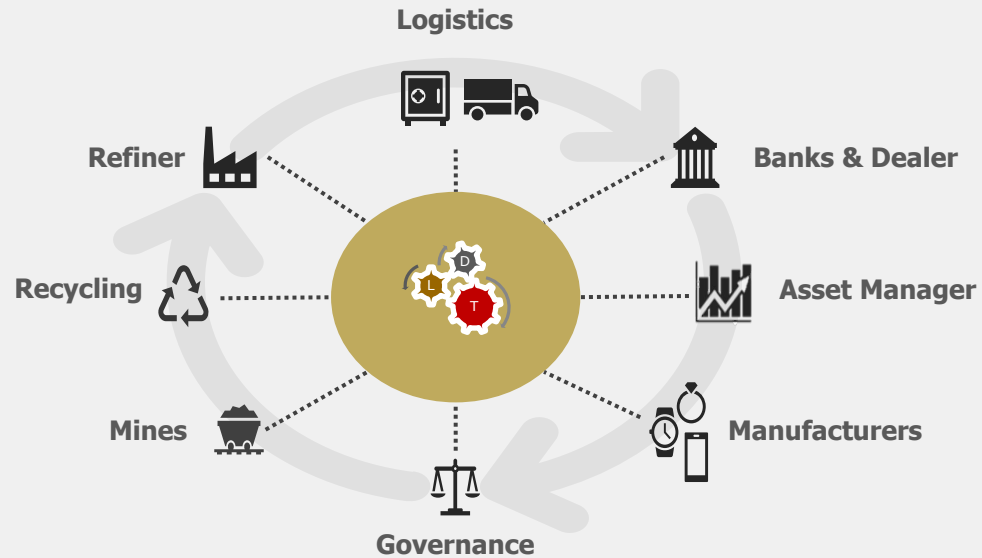


# Connecting and Digitalizing the Precious Metal Industry

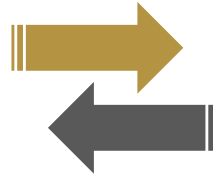
Digitization of physical products on **one** industry platform



## » Connected value chain on DLT



**Bullion Integrity Ledger™**



## » Digitized physical products on DLT



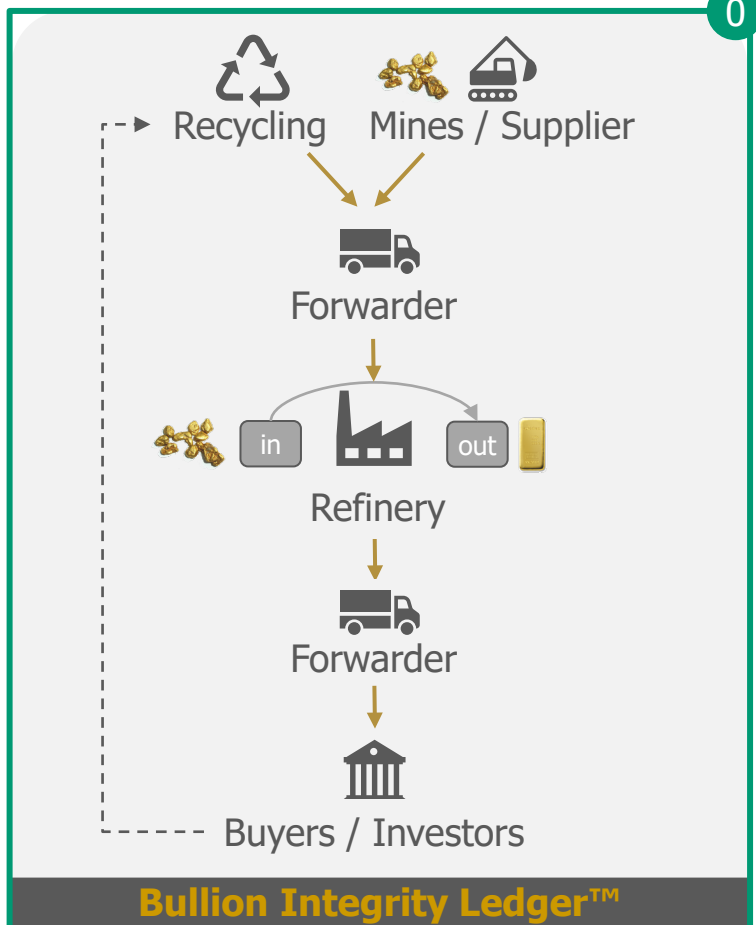
**Know-Your-Asset**

# Key Features of Bullion Integrity Ledger™ to Ensure Integrity & Trust

Bullion Integrity Ledger™ is a **private & permissioned, DLT-based B2B Network** of trusted players



## Example: Gold value chain



## Key features

0 **Certified members** access Bullion Integrity Ledger™



**London Bullion Market Association**



**World Gold Council**



**Responsible Jewellery Council**



**SBG** SWISSBETTERGOLD

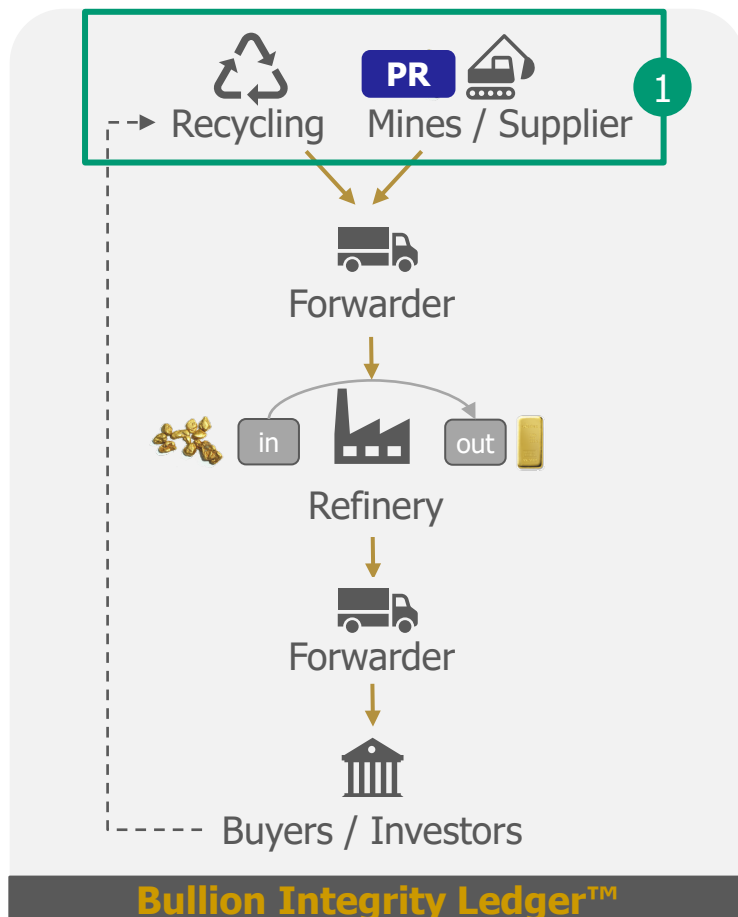
**Swiss Better Gold Association**

# Features of Bullion Integrity Ledger™ to ensure Integrity & Transparency



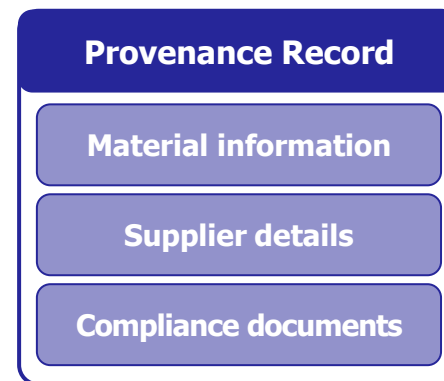
## Tamper-proof and digital provenance documentation

### Example: Gold value chain



### Key features

#### 1 Documentation of **material's origin** (provenance)



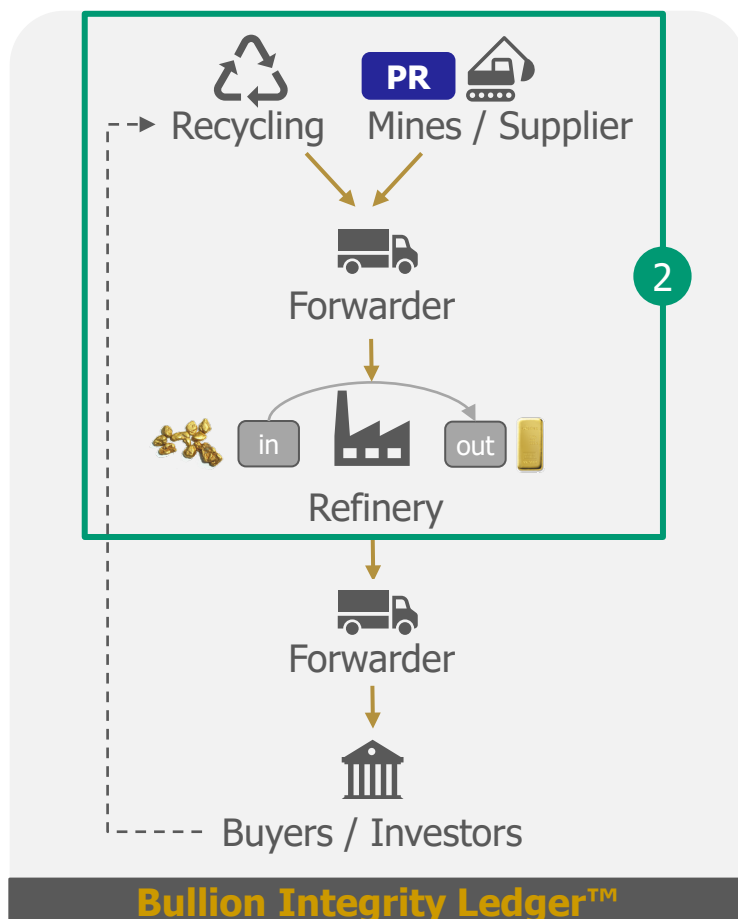
- **Digital twin** for sourced material
- **Harmonized** data standards (including ESG data)
- Foundation for **digital B2B processes**

# Key Features of Bullion Integrity Ledger™ to ensure Integrity & Trust



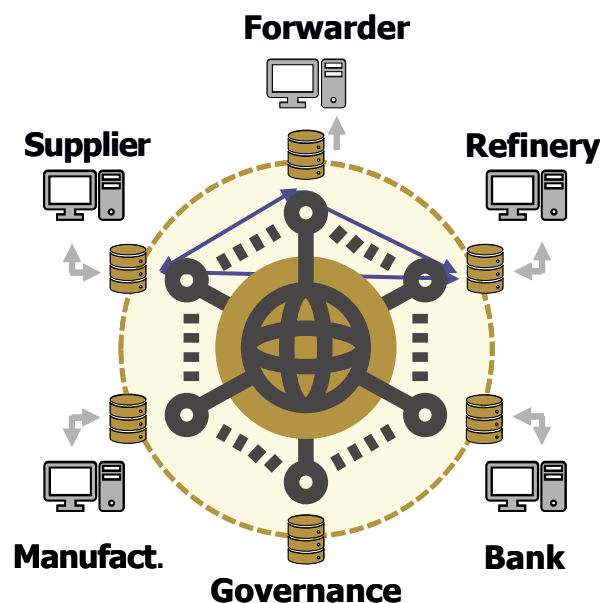
Thanks to DLT architecture - No central data aggregator

## Example: Gold value chain



## Key features

2 DLT-based **confidentiality concept** to digitalize B2B processes



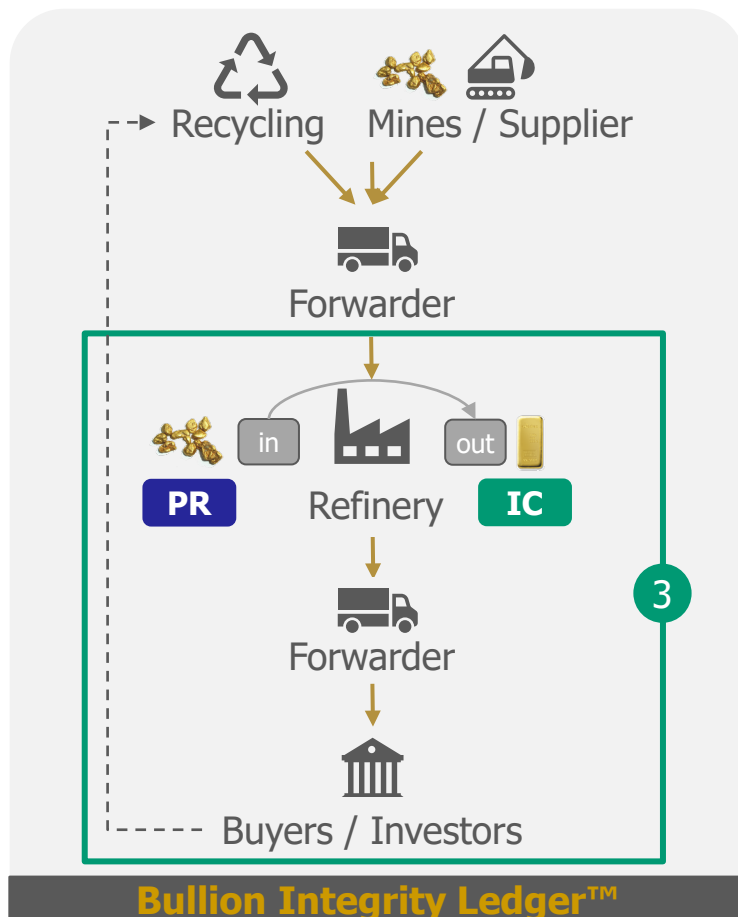
- Members stay in control of their data
- Unique **"Need-to-know"** principle with peer-to-peer communication
- Digital signatures** as technical proof for data update

# Key Features of Bullion Integrity Ledger™ to ensure Integrity & Trust



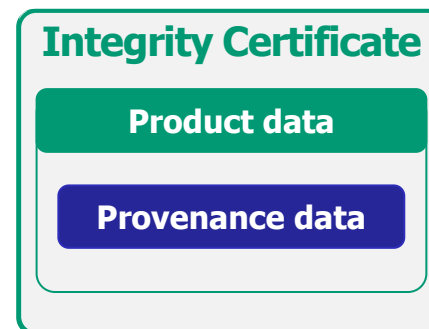
Mapping provenance data to each individual final product

## Example: Gold value chain



## Key features

### 3 Registration of refined product



- **Digital twin** of refined product
- **Provenance matching**  
(no double-spending of ESG data)
- **Real-time** update of **ESG-data** along supply chain

# Novelty: Know-Your-Asset Through Digital Integrity Certificates

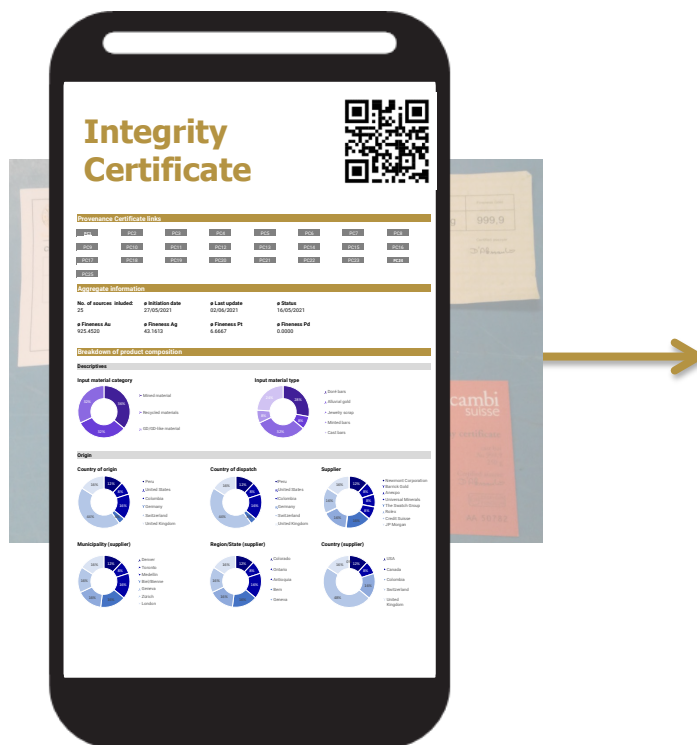
The Bullion Integrity Ledger™ provides a data standard from supplier to end investor by creating a **digital twin of each physical metal product**



## Physical Product(s)



## Digital Twin



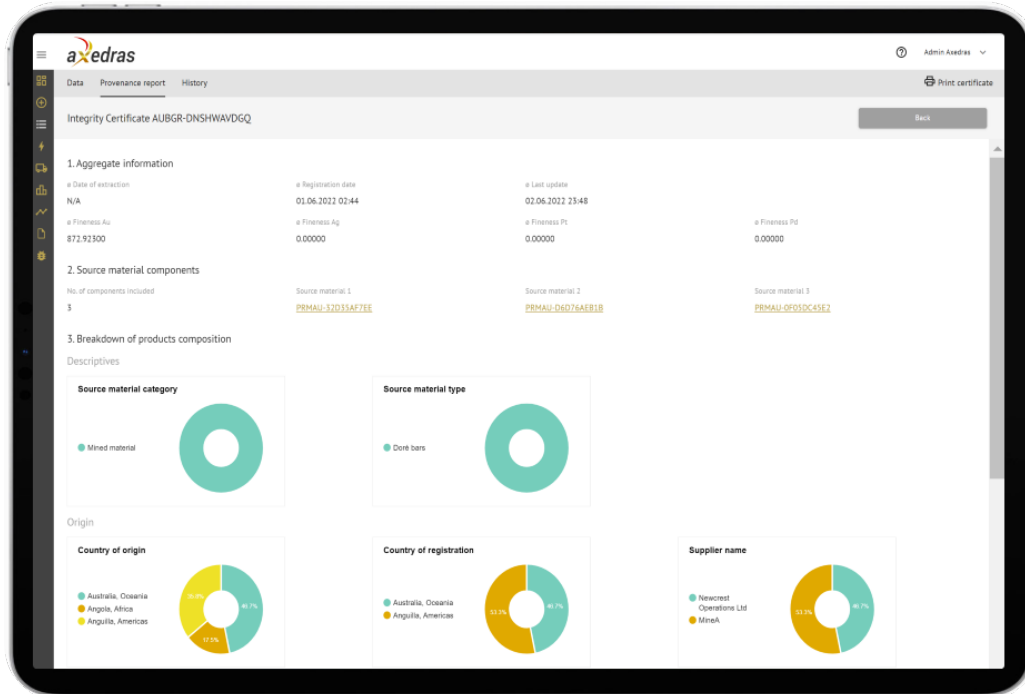
## Digital Integrity Certificate

- ✓ Compliance documentation
- ✓ ESG / CSR transparency
- ✓ Provenance & chain of custody
- ✓ Authenticity: Security features



# Example: Fully documented Gold with Integrity Certificate

Digitalized life-cycle of precious metals lead to transparency and enables sustainable financing



## Provenance & ESG data

Allows to trace gold bar to its source(s)

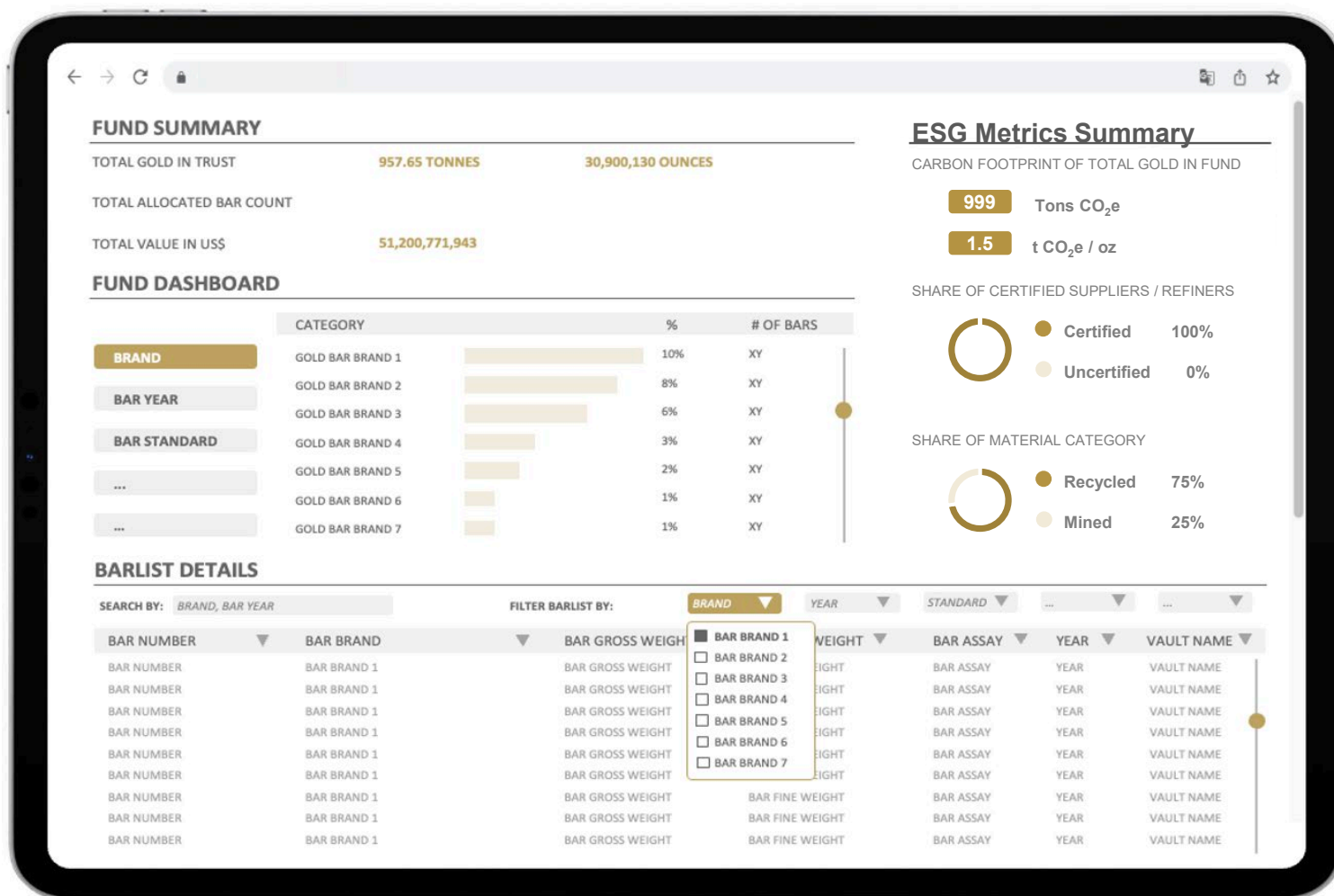
- Info about supplier
- Info about origin & chain of custody of material
- Ongoing integration & enrichment of ESG metric along supply chain

## Relevant compliance documents

One-click access to required reporting documents per bar (e.g., for compliance)

- Certificate of origin
- Licenses & Certification
- Policies

# Example: Analytics & Reporting Solution for Funds / ETFs



Flexible analytics to respond fast and detailed to requests from investors

Consistent reporting (as well for multi- custodian set up)

Option to involve 3rd party auditors



**Q&A**



## CONTACT DETAILS

**aXedras AG**

Chamerstrasse 174

6300 Zug

Switzerland

Tel. +41 58 806 2228

Email [Philipp.stockinger@axedras.com](mailto:Philipp.stockinger@axedras.com)

**WWW.AXEDRAS.COM**

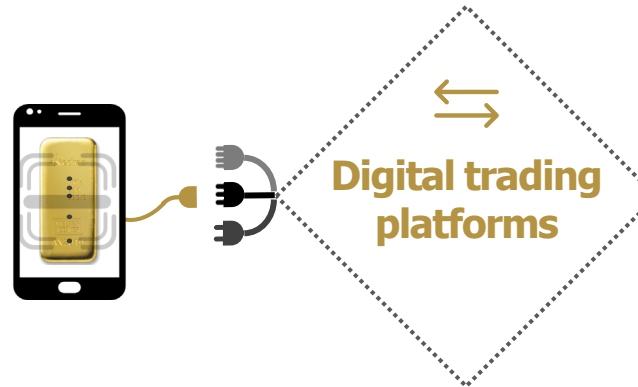


# Benefits of digital Integrity Certificates

Efficient and standardized Know-Your-Asset standard for your investments in precious metals



## Transparency & Innovation



## Efficiency



### Transparency & Verification

- › Provenance
- › ESG & Sustainability
- › Integrity

### Platform for digital products

- › Digitally documented gold
- › Tokenization
- › Analytics

### Compliance & Audit

- › Automated B2B processes
- › Trusted data standards
- › Auditability