Responsible Gold Ecosystem

Section 1: Summary

Use Case Summary			
Use Case ID:	IND-006	**Use Case Type:**	***Vertical***
Submission Date:	May 28, 2019	**Is Use Case supporting SDGs**	***Yes***
Use Case Title:	Responsible Gold Ecosystem	**Domain:**	*www.responsiblegold.com*
Status of Case	***Implementation /*** *(Live in production)*	**Sub-Domain**	
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Proposing Organization	**Emergent Technology Holdings (EmTech)** EmTech is a global technology company that specializes in fintech and regtech innovation. EmTech's business units encompass payments, identity, and distributed ledger technology (DLT) solutions. The Company's DLT expertise allows for comprehensive identity and authentication management, regulatory compliance, supply chain provenance tracking, title transfer solutions, and efficient payments and remittance. Headquartered in Silicon Valley, EmTech operates in more than 70 high-growth markets across Asia-Pacific, Latin America, Africa, and the Middle East.		
Short Description	Gold due to its intrinsic nature is susceptible to money laundering, conflict sourcing, and financing of terrorist activities. There is increasing pressure on supply chain participants to demonstrate that their production practices do not contribute to conflict or any environmental, health and safety concerns.		

	EmTech's Responsible Gold Ecosystem ("Ecosystem") provides a much-needed solution to the increasing transparency and trust burden. The Ecosystem helps enhance integrity in the global gold supply chain by using DLT to irrefutably and immutably record ethical provenance and chain of custody from mine, to refinery, to vault or fabricator. It is underpinned by EmTech's Responsible Gold Standards, a set of critical environmental, social and governance (ESG) risks and controls for the precious metals industry. The Standards provide a framework by which participants can attest that their gold production practices adhere to the highest industry requirements, manage their impacts on workers, communities and the natural environment, and generate positive ESG impacts. EmTech is committed to sustainable development by: ● Supporting participants in embedding responsible business practices; ● Connecting responsible companies and people in one Ecosystem; and ● Trading Responsible Gold
Long description	Gold has long presented opportunities for bad actors to take advantage of its complex and lucrative supply chain. Examples of illicit activities presented below make news headlines regularly due to the absence of appropriate organizational controls: ● Classified as a "conflict mineral," proceeds from gold mining and trading perpetuate armed conflict, violence, and human rights abuse in politically unstable areas, and support corruption and money laundering. ● Producers in disadvantaged regions pour mercury into rivers to extract underlying gold inexpensively, creating irreparable environmental damage and introducing catastrophic health risks to workers and neighboring communities. ● Workers, including minors, work in confined spaces and unstable mineshafts, risking death from explosions, tunnel collapse, or exposure to toxic fumes. Despite regulations and international standards to manage these risks, illicit activities persist. EmTech developed the Responsible Gold Ecosystem to ensure that gold can be quickly and irrefutably proven to be responsibly sourced. The Responsible Gold Supply Chain Application (RG SCA) automates key parts of the responsible sourcing compliance process and helps Ecosystem participants obtain relevant and accurate transaction data for the transfer of gold across the supply chain, from the moment a bar of doré is packaged at a mine, all the way to bullion in a vault. The RG SCA is underpinned by EmTech's Responsible Gold Standards ("The Standards"), which are based on existing environmental, social and governance ("ESG") standards for the precious metals industry. The Standards set the conditions of participation in the Responsible Gold Ecosystem. They provide the framework by which a gold supply chain and its associated outputs are measured, and can be affirmatively declared "Responsible Gold." The Standards help ensure that gold in the Ecosystem:

	● Does not cause or contribute to infringements of internationally-recognized human rights; ● Is not susceptible to money laundering and financing of conflict and terrorist activities; ● Does not contribute to unacceptable health, safety and labor conditions for workers; and ● Minimizes the impact of gold mining and refinement on the natural environment and surrounding communities The Standards incorporate requirements not only for miners and refiners but also for logistics providers and vault operators to bolster the ESG profile of the entire gold supply chain. The Responsible Gold Ecosystem uses a combination of hardware and software to automatically: ● Record the provenance of independently certified, responsibly mined gold ● Track the custody of gold throughout the supply chain, from mine, to refinery, to vault ● Track the custody of gold grain beyond refineries and on to jewelers and manufacturers ● Present data for ongoing analysis and analytics by both human and AI auditors to identify red flags in real time. Responsible Gold, defined as gold that has traversed through our system, can now be traced back to its origin, giving regulators, investors, fabricators, and consumers confidence that it has been responsibly sourced. EmTech leverages a consortium DLT supported by a distributed set of independent node operators. DLT allows for these records to be immutable and irrefutable. It ensures the process is fully transparent and auditable, eliminating the possibility of bad actors altering records at any time.
SDG in Focus (when applicable)	EmTech is committed to helping enhance the integrity of the gold industry by using DLT to facilitate the creation of Responsible Gold, generate positive and sustainable impact, and contribute to the UN's "Transforming our World" 2030 agenda. The primary focus of our business is on the following SDGs: **12: Responsible consumption and production.** The Responsible Gold Standards were developed to document best practices in responsible sourcing and as a tool to support participants in enhancing their ESG practices. This mission contributes to target "12.6: Encourage companies, especially large and transnational companies, to adopt sustainable practice." **16. Peace, justice and strong institutions**. The Responsible Gold Ecosystem tracks provenance and the transfer of custody of responsibly sourced gold through the supply chain. This application contributes to target "**16.4:** By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime."

<table>
<tr><td></td><td colspan="3">Furthermore, the Responsible Gold Standards incorporate a number of the SDGs, as follows, assisting businesses participating in the Responsible Gold Ecosystem to make contributions to sustainable development:

#3. Good health and wellbeing
#5. Gender equality
#6. Clean water and sanitation
#7. Affordable and clean energy
#8. Decent work and growth
#10. Reduced inequalities
#12. Responsible consumption and production
#13. Climate action</td></tr>
<tr><td>Value Transfer:</td><td>Yes (also possible deployment without value transfer)</td><td>Number of Users:</td><td>Six different types of users</td></tr>
<tr><td>Types of Users:</td><td colspan="3">● Miners
● Refiners
● Logistics Operators
● Vaults
● Auditors
● Fabricators (e.g. jewelry, technology, manufacturing companies)</td></tr>
<tr><td>Stakeholders</td><td colspan="3">● The gold industry
● Industry associations (e.g. London Bullion Market, World Gold Council, Responsible Jewelry Council)
● Governments where these industry partners operate
● Government transparency groups
● Fabricators (e.g. jewelry, technology, manufacturing companies)
● Consumers</td></tr>
<tr><td>AntiData:</td><td colspan="3">Only hashes of transaction data are stored on the distributed ledger</td></tr>
<tr><td>Identification:</td><td colspan="3">To participate in the Responsible Gold Ecosystem, miners, refiners, logistic providers, vault operators as well as customers must meet robust KYC/AML standards. During onboarding, participants undergo counterparty identification procedures, verifying legal and operating structures and ultimate beneficial ownership. Partner records are updated annually. Risk assessments covering country of origin risks and suspicious activity monitoring are ongoing.
EmTech has also developed scanning technology to validate provenance and register gold bar identities on the distributed ledger. GoldID™ uses artificial intelligence to create secure identity keys from the surface analysis of each bar. These secure keys, combined with a serial number, make the authentication process foolproof. The keys are stored on the distributed ledger immediately following casting and imaging at the refinery. Users can verify the authenticity of Responsible Gold regardless of age and location.</td></tr>
<tr><td>Predicted Outcomes:</td><td colspan="3">Early identification of illicit activities and actors:
● Real-time detection of suspicious activities and red flags.
● Participants and regulators can respond faster to eliminate bad actors and illicit activities.</td></tr>
</table>

	Connecting responsible businesses in one Ecosystem: ● Immutable digital records of provenance and chain of custody boost transparency and trust. ● Adoption of the Responsible Gold Standards by supply chain participants enhances trust and Ecosystem integrity. ● Reduces audit burden and increases efficiencies by streamlining requirements and compliance data. ESG uplift for all Ecosystem participants: ● The Responsible Gold Standards are a consolidation of industry best practice controls. ● The Standards provide a practical guide to implement sustainability policies, procedures, and reporting. Continuous improvement in production practices: ● Driven by increased demand for Responsible Gold from: ○ Jewelers and other fabricators responding to customer need for gold with provenance ○ Ethical investors with ESG mandates ○ Islamic investors

Overview of the Business Problem or Opportunity

Gold plays an essential global role, from maintaining government reserves to its use in technology and healthcare. There is growing demand from end consumers for greater transparency into how the gold products they are buying come to market.

EmTech saw an opportunity to introduce DLT for gold supply chain participants to provide irrefutable assurance that gold has been mined and produced in adherence with the highest social, environment and safety standards.

All participants in the gold supply chain - from the miner to the end user - benefit from a simpler, less costly and more efficient way to ensure gold's provenance as Responsible Gold.

Why Distributed Ledger Technology?

The key advantages DLT offers over traditional systems include efficiency improvements, immutability, auditability, decentralization, and disintermediation as an internet native ledger.

- Efficiency Improvements: most business processes that are involved in global finance and trade can be scripted with computer code allowing results to be provable and permanent on the global ledger.

- Immutability and Auditability: distributed ledger utilizes peer-to-peer networking, asymmetric cryptography, and cryptographic hashing to secure the information and make it verifiable and trusted.

- Decentralization: decentralization of the distributed ledger reduces the potential for central points of failure.

- Internet Native Ledger: DLT is a distributed database leveraging native internet capabilities. Trade, financing, or industry processes can be digitally recorded and accessed anywhere by

any device that can access the internet. Although the term DLT or "blockchain" is widely used to cover a range of technologies, its core is comprised of three main components:

1. Cryptographic Hashing: a way to generate small and unique identifiers for any data, which allows for fast comparisons of large datasets and the ability to securely verify that data has not been altered. In modern DLT, various data structures are used to record the historical order of transactions, which are hashed into an identifier that functions as a method for comparison for servers on the network.

2. Peer-to-peer Networking: a set of computers that communicate among themselves without relying on a single central authority, and therefore do not have a single point of failure.

3. Asymmetric cryptography: a system that uses pairs of keys, including a public key that can be disseminated widely, and private keys that are managed securely. This cryptographic architecture allows computers to send messages to specific recipients, allowing anyone to verify the sender's authenticity, while only intended recipients can read the contents.

Section 2: Current process

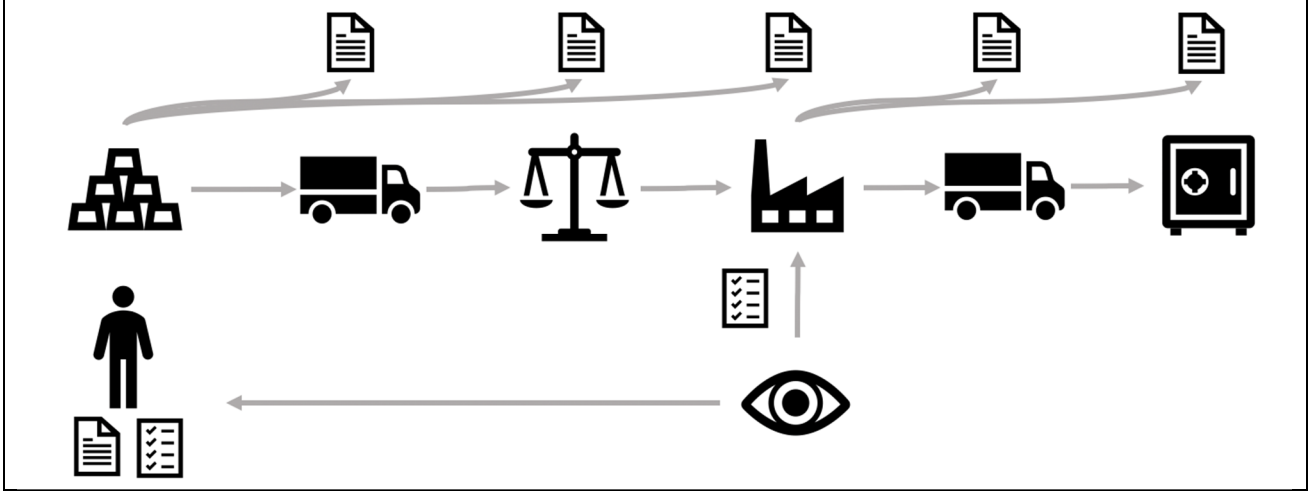
Current Solutions
Currently, there are no end-to-end systems that record the provenance of responsibly sourced gold from mine, to refiner, to vault. Current systems are siloed by organizations, largely paper-based, with ad-hoc communication taking place over phone and email. This fragmented landscape presents ample opportunities for error and manipulation.

Existing Flow (as-is)		
Step	**User Actions**	**System Actions**
1.	**Miner** pours molten ore into doré bars. Each bar is imprinted with a serial number. Its weight and assays are collected and documented. **Miner** readies the shipment for transport by packaging and sealing each bar. **Risks Identified:** ● **Miner** does not adhere to responsible mining practices resulting in negative impacts on the workforce, communities, and environment. ● Illicit metal is mixed in with legitimate gold during the pour.	**Miner** creates several hard copies of a document with information about produced bars, including serial number, weight, gold, and other element content. **Miner** shares this document with the **logistics operator**, **customs agent**, **refiner,** and **observer.** The **miner** keeps a copy of the documentation.
2.	**Logistics operator** arrives, accepts custody of the shipment and transports the shipment to **customs agents**.	**Logistics operator** confirms that physical goods for shipment are those described in the documentation.

3.	**Customs agents** inspect doré and paperwork, then take samples to levy excise tax. **Risks Identified:** ● Lack of transparency promotes corruption.	**Customs agents** document the weight of samples taken and share these with **miner** and **refiner**. Government assays are shared with **miner** to settle on payment of excise tax.
4.	**Logistics operator** delivers the shipment to the **refinery**.	
5.	**Refiner** receives the shipment and compares actual delivery against expected (via documentation from **miner** and **customs agents**). **Observer** watches unpacking, weighing, and sampling procedure on behalf of the **miner**. The **miner** is alerted of any discrepancies.	**Refiner** confirms that the physical goods in shipment are those described in the documentation from the **miner** and **customs agents**. **Observer** documents that receiving process complies with the contract between **miner** and **refiner** and attests that appropriate procedures were followed.
6.	**Refiner** settles payment with **miner**, then begins refining process. The final product (bullion) is sold to **end customers** (e.g. central banks, investors, retailers, manufacturers) who request delivery of their bullion. Often this destination is a **vault**. The **refiner** packages the bullion for delivery and contracts a **logistics operator** to carry out the delivery. **Risks Identified:** ● **Refiner** does not follow responsible production practices, resulting in harm to workers, communities, and the environment. ● Illicit gold is mixed in with legitimate gold during the refining process. ● Counterfeit bullion is introduced during storage.	**Refiner** documents refining and sales processes in different in-house systems. **Refiner** communicates shipment details to **logistics operator**.
7.	**Logistics operator** delivers the shipment to the **vault**. **Risks Identified:** ● Counterfeit bullion is introduced during transport.	**Logistics operator** confirms that physical goods for shipment are those described in the documentation.

8.	**Vault** takes custody of and vaults bullion. **Vault** confirms receipt with **end customer**. **Risks Identified:** ● Vault does not have appropriate security measures to protect gold resulting in potential theft, tampering, and risk to workers. ● Counterfeit bullion is introduced during storage.	**Vault** confirms that physical goods for shipment are those described in the documentation.

Process scheme (as-is)



Data and information (as-is)

Data	Type	Description
1	Documents	Examples include export documents, airway bills, assay reports, melt report, and sampling reports. These standardized documents convey relevant information to different participants in the supply chain.
2	Internal systems	Examples include ERP, CRM, invoicing, and quoting systems. No integrations between these systems across supply chain partners exist.
3	Contractual agreements	Documents describing expectations between two or more parties. For example, refiners require that doré have less than a certain threshold of different types of harmful elements (e.g. mercury, iron, arsenic, etc.) to complete the purchase.
4	Ad hoc phone calls and emails	When deviations from the "happy path" occur, settlement takes place via ad hoc telephone calls and emails.

Participants and their roles (as-is)

Actor	Type/Role	Description
1	Miner	Extracts precious metals from the ground.
2	Logistics Operator	Responsible for moving valuable goods from one location to another securely. Holds liability for any losses while in transit.
3	Customs agent	Accurately records precious metals as they leave the country to collect excise tax.
4	Refiner	Takes in ores, separates constituent compounds, and produces refined end products (bullion). Sells bullion to customers.
5	Vaulter	Responsible for housing valuable goods at a secure location. Holds liability for any losses while at rest.
6	Observer	Responsible for ensuring samples taken at the refinery are carried out correctly and in good faith. Represents the miner's interest in this situation.
7	End Customer	Central banks, investors, retailers, manufacturers, collectors, and other parties interested in purchasing refined gold.

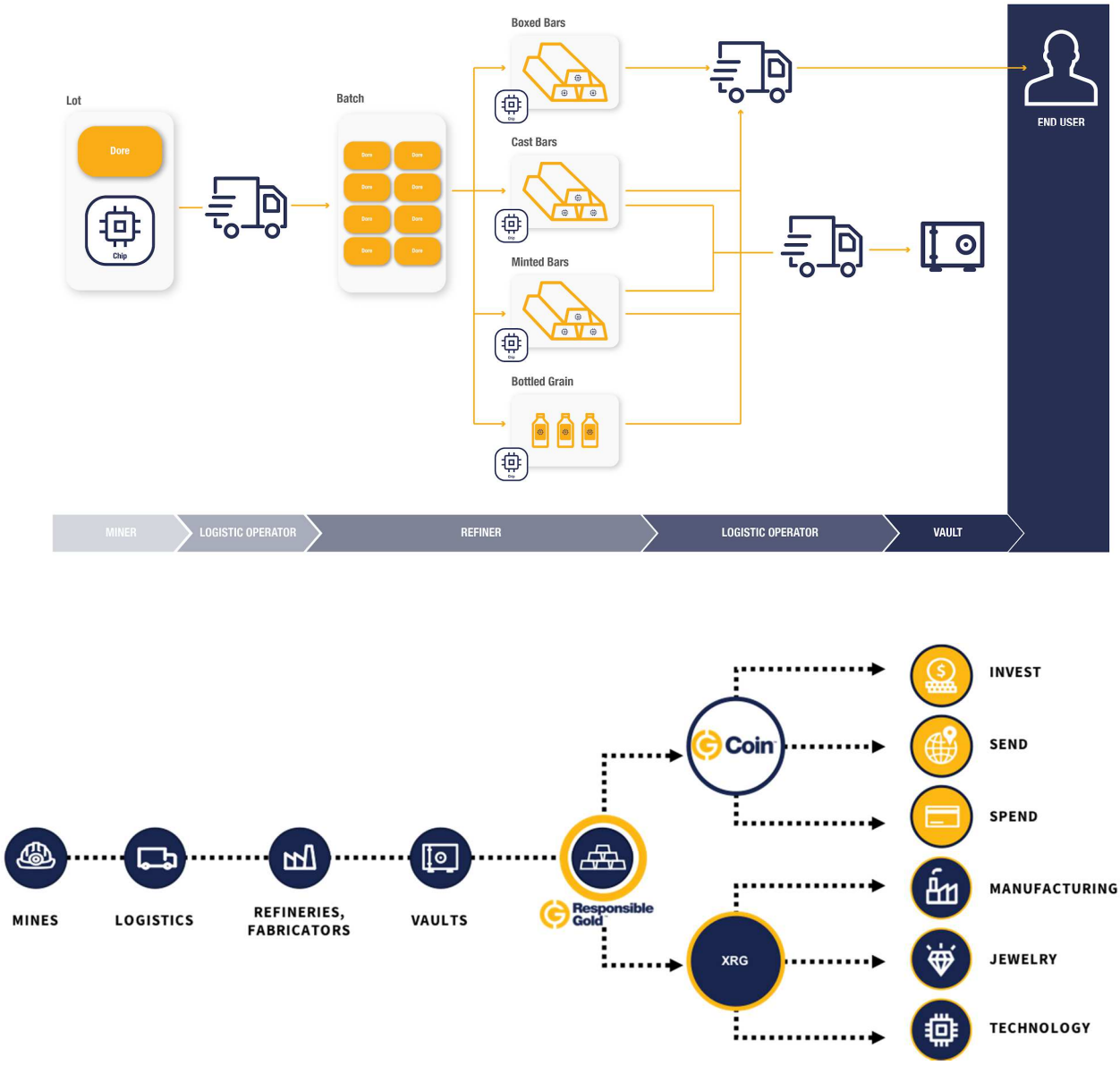
Section 3: Expected process

Expected Flow (to-be)		
Step	**User Actions**	**System Actions**
1.	**Miner** pours molten ore into doré bars. Each bar is imprinted with a serial number, and its weight and assays are collected and documented. **Miner** readies the shipment for transport by packaging and sealing each bar. **New Process:** ● **Miner** implements Responsible Gold Standards and is audited against compliance annually.	**Miner** uploads a spreadsheet containing all shipment information into the RG SCA, instantly generating assets in the system. Human and AI **auditors** compare each new shipment created by the **miner** against historical shipments from that site and flag any significant deviations for investigation. Using the RG SCA, the **miner** links each asset to a unique cryptobelt, recording all asset attributes. Upon initiating a transfer in the RG SCA, all relevant information is shared with the **logistics operator**.
2.	**Logistics operator** arrives, takes custody of the shipment and transports the shipment to the **customs agents**. **New Process:** ● **Logistics operator** implements Responsible Gold Standards and provides a self-	**Logistics operator** takes custody of each asset by using the RG SCA to scan each cryptobelt. **Logistics operator** confirms that physical goods for shipment are those described in the RG SCA and documented on the distributed ledger.

	certification of compliance annually. ● Human and AI **auditors** compare timestamps of custody transfers against expectations and flag any significant deviations for investigation.	
3.	**Customs agents** inspect doré and paperwork, then take samples to levy excise tax. **New Process:** ● Human and AI **auditors** compare sampling and assay statistics against expectation and flag any significant deviations for investigation. ● Updated values are instantaneously shared with permissioned supply chain participants.	**Logistics operator** uses the RG SCA to document the customs process on the distributed ledger, along with any supporting documents. Other participants in the supply chain corridor are notified and can view the details of the event. Upon initiating a transfer in the RG SCA, all relevant information is shared with the **refiner**.
4.	**Logistics operator** delivers the shipment to the refinery.	
5.	**Refiner** receives the shipment and confirms that physical goods they have received are those described in the RG SCA and documented on the distributed ledger.	**Refiner** takes custody of each asset by using the RG SCA to scan each cryptobelt. **Refiner** confirms that physical goods they have received are those described in the RG SCA and documented on the distributed ledger.
6.	**Refiner** settles payment with **miner**, then begins refining process. The finished product (bullion) is sold to **end customers** (e.g. central banks, investors, retailers, manufacturers) who request delivery of their bullion. Often this destination is a **vault**. The **refiner** packages the bullion for delivery and contracts a **logistics operator** to carry out the delivery. **New Process:** ● **Refiner** adopts the Responsible Gold Standards and is audited for compliance annually.	Through integrations between ERP systems and the Responsible Gold supply chain API, the **refiner** documents their refining process from doré to bullion on the distributed ledger. Human and AI **auditors** compare refining statistics against expectation and flag any significant deviations for investigation. **Refiner** uses GoldID to register an identity for each piece of bullion. Thousands of points on the surface of each bullion form a unique fingerprint, uniquely identifying that bullion and protecting it against counterfeiting. This unique identifier is hashed and stored on the distributed ledger. **Refiner** places GoldID-registered bullion into a shipping container. Using the RG SCA, the

	• Human and AI **auditors** compare refining statistics against expectation and flag any significant deviations for investigation. • Bullion is scanned using GoldID. The AI-powered technology registers a unique identity for each bullion to help future-proof against forgery.	**refiner** registers the shipping container with a new cryptobelt. This registers on the distributed ledger that the shipping container has been packed and sealed. The **refiner** initiates a transfer in the RG SCA to the **logistics operator**.
7.	**Logistics operator** delivers the shipment to the **vault**. **New Process:** • GoldID prevents substitution of counterfeit bars.	**Logistics operator** takes custody of each shipping container by using the RG SCA to scan each cryptobelt. **Logistics operator** confirms that physical goods for shipment are those described in the RG SCA and documented on the distributed ledger. Upon initiating a transfer in the RG SCA, all relevant information is shared with the **vault**.
8.	**Vault** takes custody of and vaults bullion. **Vault** confirms receipt with end customer. **New Process:** • **Vault** agrees to Responsible Gold Standards and provides a self-certification of compliance annually. • GoldID prevents receipt of counterfeit bars.	**Vault** takes custody of each shipping container by using the RG SCA to scan each cryptobelt. **Vault** confirms that physical goods for shipment are those described in the RG SCA by using GoldID.

Process scheme (to-be)



Participants and their roles		
Actor	**Type/Role**	**Description**
1	Miner	Extracts precious metals from the ground.
2	Logistics Operator	Responsible for moving valuable goods from one location to another securely. Holds liability for any losses while in transport.
3	Customs agent	Accurately records precious metals as they leave the country to collect excise tax.
4	Refiner	Takes in ores, separates constituent compounds, and produces refined end products (bullion). Sells bullion to customers.

5	Vaulter	Responsible for housing valuable goods at a secure location. Holds liability for any losses while at rest.
6	Auditor	Human and AI auditors analyze data sets and flag any deviations from expected values for further investigation.
7	Customer	Central banks, investors, retailers, manufacturers, collectors, and other parties interested in purchasing refined gold.

Data and information		
Data	**Type**	**Description**
1	Responsible Gold Supply Chain Application (RG SCA)	Mobile application used by supply chain participants to track provenance and verify the integrity of gold from mine, to refinery, to vault. Documents key events on the distributed ledger.
2	Internal systems	Examples include ERP, CRM, invoicing, and quoting systems. These systems can be integrated into the RG SCA.
3	Contractual agreements	Documents describing expectations between two or more parties. For example, refiners require that doré bars have less than a certain threshold of different types of harmful elements (e.g. mercury, iron, arsenic, etc.) to complete the purchase.
4	Ad hoc phone calls and emails	When deviations from the "happy path" occur, settlement takes place via ad hoc telephone calls and emails.

Security and privacy

Semi-permissioned Blockchain

The Responsible Gold Ecosystem combines the best of both private and public blockchains. To ensure that the sensitive financial data is secure, the Responsible Gold Ecosystem has a private state. Simultaneously, the Ecosystem has a public state, which allows it to be transparent and verifiable. This hybrid configuration makes the distributed ledger highly interoperable with legacy systems and other blockchain platforms, as well as scalable with enterprise capable throughput.

Privacy

Endpoints are secured by required a web token to be supplied for any resource that is not publicly readable. The web token is issued by an authority who signs with the tenant private key. The server verifies the validity of the token using the public key from the same tenant. Inside the token is a property that identifies the specific user within the system. The system determines whether or not a user has access to the organization, which owns the resource in question. If they do, the system allows the request to be completed.

Logging and Monitoring

The applications within the Responsible Gold Ecosystem use a monitoring and management service built for developers, system operators, site reliability engineers (SRE), and IT managers. It provides applications with data and actionable insights to monitor their operation, understand and respond to

system-wide performance changes. It also collects monitoring and operational data in the form of logs, metrics, and events. This provides a unified view of resources, applications, and services that run on cloud services, and on-premises servers.

The applications also use a cloud log management and metrics monitoring solution. With the service, we monitor and troubleshoot our app in real-time to improve security and compliance. The applications also use sentry for error tracking to help monitor and fix crashes in real-time.

Data Protection

The applications within the Responsible Gold Ecosystem use Database-as-a-Service for data with inbuilt data protection features and tools. This increases the safety of accounts and data like:

- Database authentication
- Account-level security settings with two-factor authentication
- Secured communication (SSL connections)
- Custom firewalls with access only restricted from our environment using whitelisted IPs

Access Control List

Network accounts are implemented in a standard fashion and utilized consistently across the organization. Accounts are for individuals only. Account sharing and group accounts are not permitted. A specific example is database administrators who are not allowed to log in to databases as MySQL users and must use their own accounts. User accounts are not given administrator or 'root' access unless it is necessary to perform their job function. Individuals requiring access to confidential data have an individual and distinct account.

QA and development have no access to production systems. All production systems are accessed programmatically, via automated deployment scripts.

Intrusion Detection

A monitoring solution provides threat detection. The solution continuously monitors for malicious or unauthorized behavior to help protect cloud accounts and workloads. It monitors for activities, such as unusual API calls or potentially unauthorized deployments, that indicate a possible account compromise. It also detects potentially compromised instances or reconnaissance by attackers.

Main success scenario + expected timeline

The Responsible Gold Ecosystem is live in production and has been piloted with three different major gold mines. The technology is continuously being enhanced. There are significant ongoing efforts to promote it within the gold industry.

In the short term (1-3 years), similar ecosystems based on responsible standards can be created/replicated for other industries. Receiving acknowledgment and support from reputable industry bodies, such as ITU and UN, will help promote and educate prospective users on how DLT can enhance supply chain integrity.

Conditions (pre- or post-)

Pre-conditions:

1. Participants are required to sign legal agreements applicable to their part in the process.
2. Some fees may be payable, such as license and hardware costs.

Post-conditions:

1. Participants continue following the Responsible Gold Supply Chain process and adhere to the Standards that underpin the Ecosystem.
2. Participants must provide evidence when auditable DLT records are reviewed.

Performance needs

The production DLT utilized by Responsible Gold Ecosystem has been tuned and optimized for enterprise throughput demands. Currently, the production DLT has been tested exceeding 10,000 transactions per second. There are ongoing developments that will exceed this.

The DLT utilizes an iBFT consensus algorithm and generates a new block every second. The DLT provides the speed, security, and reliability required by almost all enterprise use cases and exceeds that of any existing supply chain provenance application.

The network leverages node-as-a-service operators who provide 99.99% uptime guarantees and cloud-based load balancing and failover protection.

Legal considerations

Distributed ledger technology and, by extension, the Responsible Gold Blockchain Network, may be subject to a variety of federal, state, and international laws and regulations, including those with respect to consumer privacy, data protection, consumer protection, content regulation, network neutrality, cybersecurity, intellectual property (including copyright, patent, trademark and trade secret laws), and others. These laws and regulations, and the interpretation or application of these laws and regulations, could change. In addition, new laws or regulations affecting the Responsible Gold Blockchain Network could be enacted.

Additionally, the users and developers of the Responsible Gold Blockchain Network may be subject to industry-specific laws and regulations or licensing requirements. If any of these parties fail to comply with any of these licensing requirements or other applicable laws or regulations, or if such laws and regulations or licensing requirements become more stringent or are otherwise expanded, it could adversely impact the Responsible Gold Blockchain Network.

Risks

To participate in the Responsible Gold Ecosystem, each party must commit to the Responsible Gold Standards. Each participant is directly responsible for attesting that all records they enter into the RG SCA are true and accurate. AI and human auditors review data entry against expectations (based on historical analysis) and flag potential mis-entry or fraudulent entries for review. Parties proven to have acted in bad faith could be exposed to legal action.

The primary technical risk to participants in the Responsible Gold Ecosystem is poor connectivity/slow internet. Inadequate connectivity may cause communication between a device and the distributed ledger to be delayed, or to fail. This would require a user to repeat the process once connectivity has been restored. This risk primarily exists only at the most remote mine sites.

Special Requirements

Prospective participants must be willing to implement the Responsible Gold Standards and follow specific steps in the supply chain workflow to record the provenance of Responsible Gold.

Implementation of the solution also requires participants to install the RG SCA on a registered mobile device and provide an infrastructure with an internet connection.

External References and Miscellaneous

THE RESPONSIBLE GOLD STANDARDS

The Responsible Gold Standards draw on existing ESG standards and industry guidance. Examples include:

- World Gold Council Conflict Free Standard
- LBMA Responsible Gold Guidance
- OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas
- UN Global Compact
- UN Principles of Responsible Investment

- Fork of blockchain
- Quorum blockchain consensus algorithms
- Cryptobelts use asymmetric encryption to remain unique
- GoldID uses artificial intelligence and hashes

RECENT NEWS COVERAGE OF EMTECH AND RESPONSIBLE GOLD

- Discussing Responsibly Sourced Gold Business - CNBC
- Blockchain Comes to the Gold Market - SBMA
- Blood Gold Drives an Industry Mine to Market Transparency Push - Bloomberg
- EmTech Brings Gold on the Blockchain - Ethereum World News

Other Notes

Implementation of Responsible Gold Ecosystem may involve some license fees and hardware cost charged to the participants.