

**TRUST**CHAIN™

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CMO

RG

**RICHLINE GROUP**  
A BERKSHIRE HATHAWAY COMPANY

“Technological solutions for  
*sustainability* and  
*responsible sourcing*  
in the Jewellery industry”

# Responsibility...Technology...Marketing



“The challenge of our unknown future is so much more exciting than the stories of our accomplished past.”



# Chain of Trust

*The jewelry industry begins embracing blockchain technology*



# WHY RESPONSIBLE MATTERS?



- 66% of consumers are willing to spend more on a product if it comes from a sustainable brand. -Nielson's annual Global Corporate Sustainability Report, 2015
- 73% of surveyed millennials indicating a similar preference.
  - Additionally, 81% of millennials even expect their favorite companies to make public declarations of their corporate citizenship. --Nielson's annual Global Corporate Sustainability Report, 2015
- Four Major Qualities in Socially Responsible Companies:
  - Invested in the betterment of society and the solution of social problems
  - Prioritize "making an impact" on the world around them
  - Open and honest about efforts
  - Involve customers in good works / give back
- Nine in ten millennials would switch brands to one associated with a cause





# World Luxury Jewelry Market

*“It will become increasingly important for luxury brands to be completely transparent about their ethical stances and show that they care about the planet and its people.”*

EUROMONITOR INTERNATIONAL (2018)

**73%**

**MILLENNIALS WILLING  
TO PAY MORE FOR  
“SUSTAINABLE GOODS”**

NIELSEN (2015)

**Forbes**

“Blockchain technology will serve as a key component in ensuring the sustainability of consumer demand for luxury jewelry.”

**SO IF THE REPUTATION  
OF THE GOLD  
INDUSTRY AFFECTS  
EVERYONE IN THE  
INDUSTRY, WE NEED  
TO ADDRESS THESE  
ISSUES TOGETHER.**



# Responsible Supply Chain



Tracked...Traced...Transparent...Truthful...Trusted



<https://www.facebook.com/IBM/videos/10215616441229106/>



# TrustChain™

*This blockchain collaboration between The Richline Group and IBM will track and authenticate diamonds, precious metals and jewelry at all stages of the global supply chain, from the mine to the retailer.*

*This is a unique collaboration that leverages IBM's technology and the UL, independent third-party verification*



1. The TrustChain™ collaboration is **well positioned to engage with the wider industry** on a solution that will improve efficiency in managing the movement and provenance of diamonds and precious metals.



TRUSTCHAIN™

## TrustChain™ Positioning

By leveraging distributed ledger technology to track jewelry from origin to customer end, we can not only deliver a **transparent, trustworthy and ethical gold and diamonds** to our customers, but also **tell the story and unveil meaning behind** the gold and diamonds that went into making the special piece.

- **What:** TrustChain is a distributed ledger technology-based responsible sourcing verification solution
- **How:** that delivers transparent, trustworthy and ethical diamond jewelry
- **For:** socially-conscious consumers through retailers
- **Why: Economics not only Ethics**





TRUSTCHAIN™

## A simple overview of blockchain

In essence, **blockchain is a technology which facilitates the exchange of trust.** within the context of a business network (tracking the provenance of a supply chain)

However, at its core blockchain is a distributed ledger. A *ledger* being the system of record. And *distributed* being a common view of the ledger held by a number of parties, with multiple versions of the truth.

There are six key aspects to blockchain

1. **Provenance;** enable any asset to be secured to a ledger, physical or virtual
2. **Consensus/Inclusion;** all parties agree to a network verified
3. **Finality;** once an operation is completed, that operation is completed for good
4. **Permissions;** ensure appropriate visibility, transactions are secure and authenticated
5. **Immutability;** once data has been written no one can change it
6. **Smart Contracts;** dynamic agreements on how to execute transactions

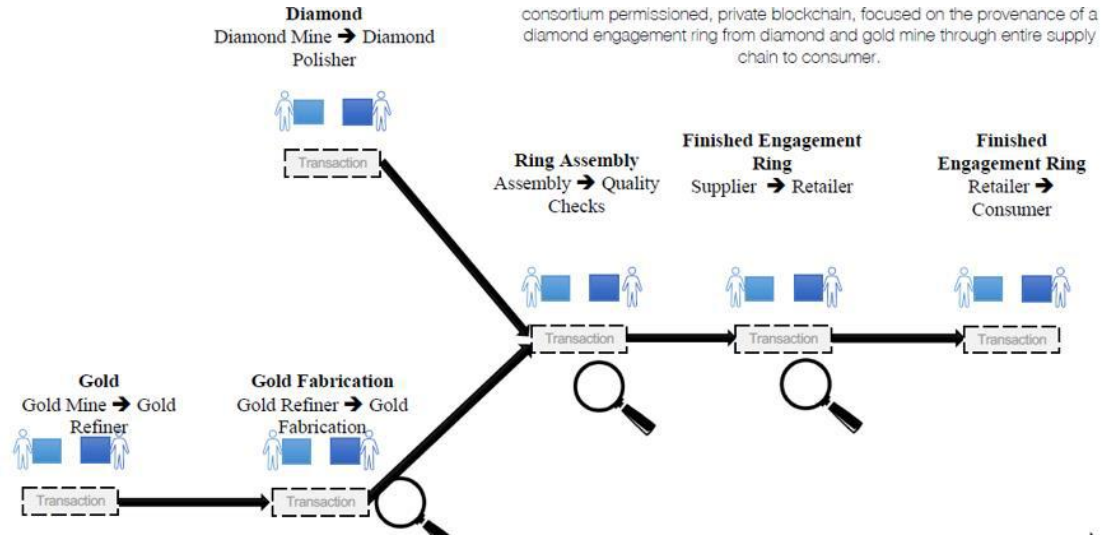
# A simple overview of blockchain



## Understand the fundamentals of Blockchain

BlockChain Technology presents opportunities for disruptive innovation in global business.

<https://www.youtube.com/watch?v=ID9KAnkZUjU>



# Chain of Custody

Know your Counterparty

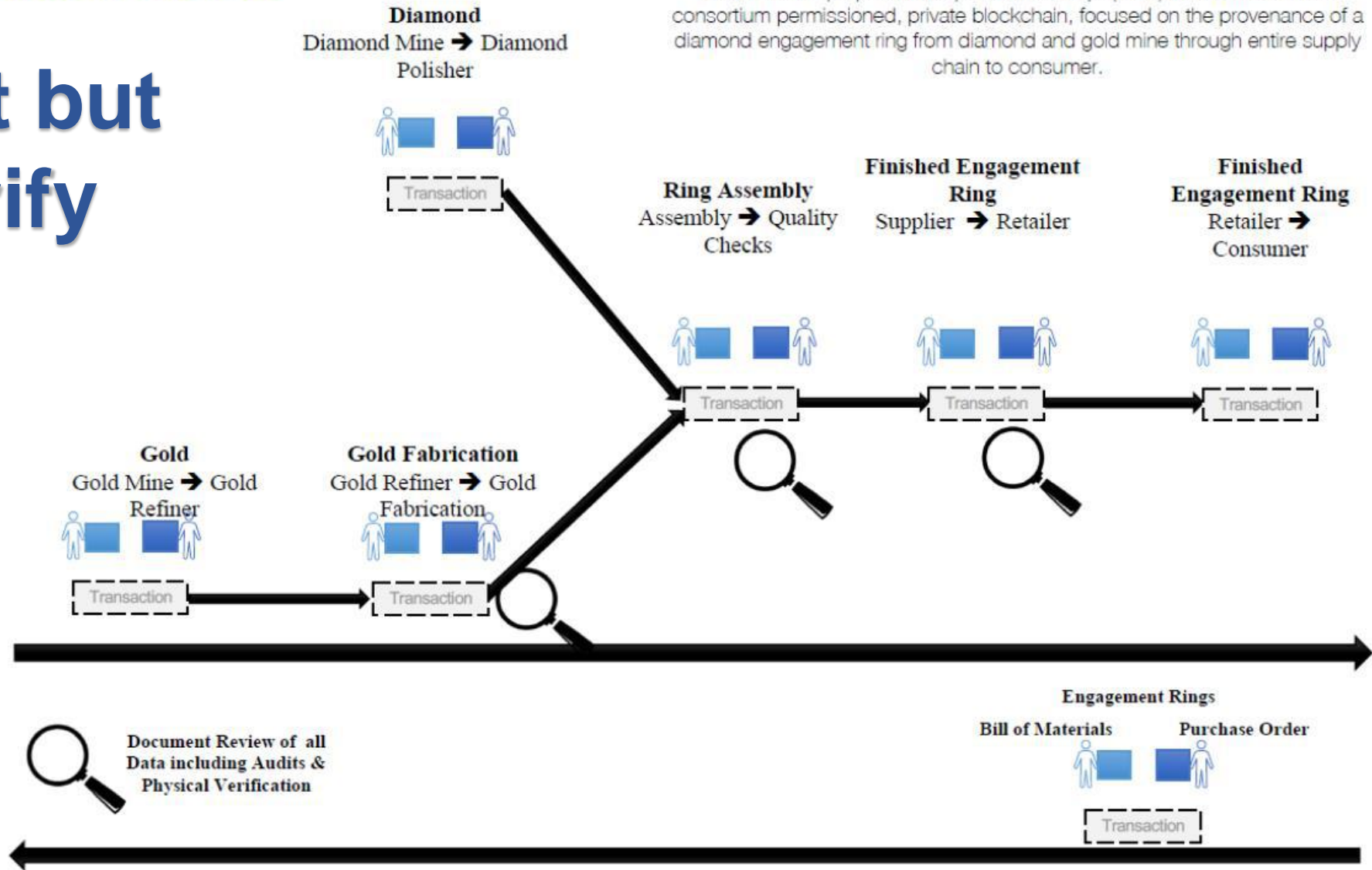




# How verification works

## Trust but Verify

Outline of the proposed first proof-of-concept (POC) for the Trust Chain consortium permissioned, private blockchain, focused on the provenance of a diamond engagement ring from diamond and gold mine through entire supply chain to consumer.



## DEVELOPING TECHNOLOGY:

The Responsible Gold Supply Chain Applications provide immutable records of gold' provenance and automates transfer of custody



Miners attach tamper-proof cryptographic seals to doré containers, register assets onto the blockchain and transfer custody to their logistics provider.



Security personnel accept physical custody of the doré and scan the cryptoseals with a mobile device. The change in custody is immutably recorded on the blockchain.



The refinery scans the cryptoseals to record another immutable custody transfer. Doré is transformed into 99.99% Responsible Gold products and registered onto the blockchain.



Responsible Gold products, including kilobars, large bars, and grain are shipped to a vault or fabricator to meet demand.

For the first time, jewelers can access certified conflict-free, responsibly sourced gold with irrefutable assurance of provenance



## **GOLDID™: IMAGE IDENTIFICATION AND RECOGNITION TECHNOLOGY TO AUTHENTICATE RESPONSIBLE GOLD BARS**

EmTech is launching GoldID image recognition technology to validate provenance and register Responsible Gold kilobar identities onto the blockchain.

The ability to authenticate bars as they move beyond the refinery, and from custodian to custodian, reduces the risk of fraud and enhances trust in physical gold trading



### **RESPONSIBLE**

High ESG impact and exceeds Shariah compliance requirements



### **SECURE**

Vaulted in licensed facilities and independently audited by Bureau Veritas



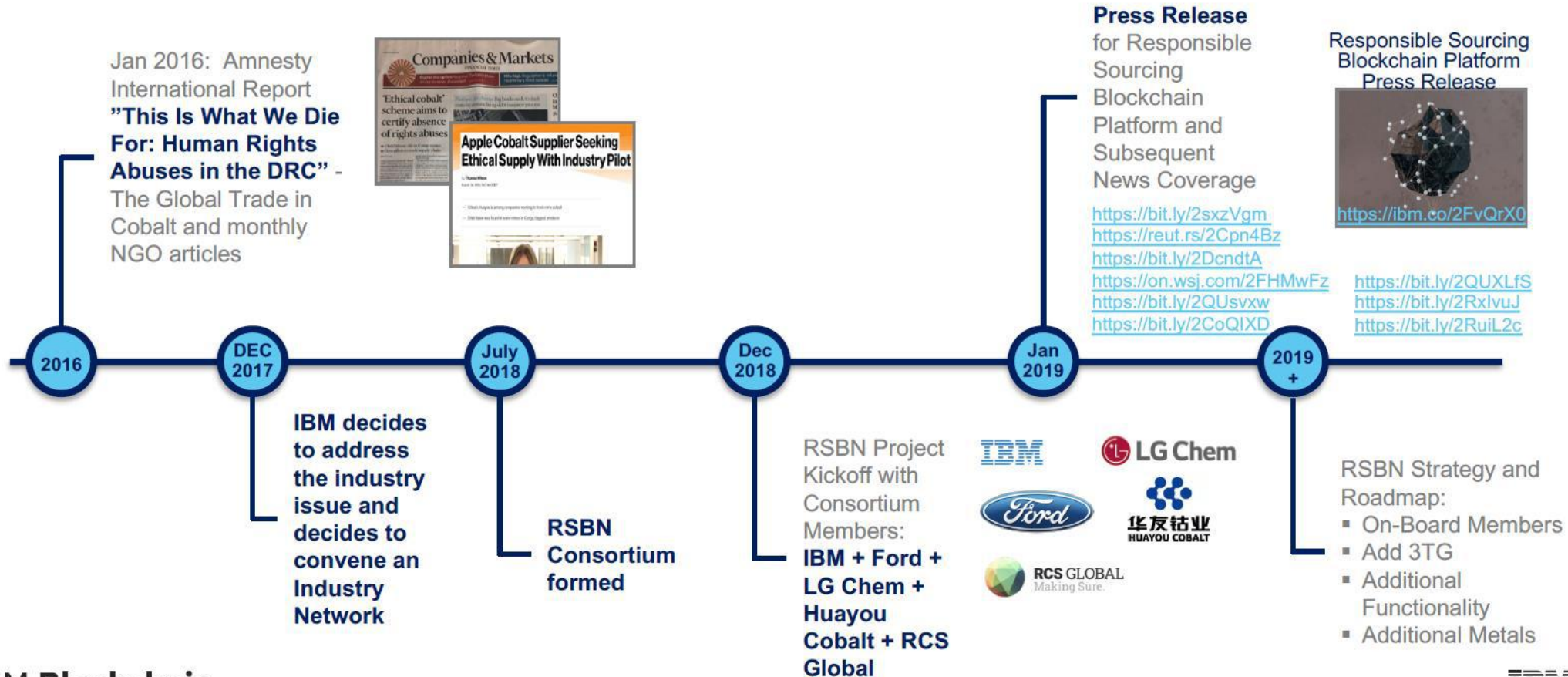
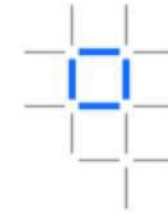
### **SMART**

Captures gold's portfolio qualities, including diversification and capital preservation



# RSBN Journey

## From Market Imperatives to Pilot Execution



IBM Blockchain





# IBM Food Trust. A new era for the world's food supply.

Join the ecosystem of producers, suppliers, manufacturers, retailers and others creating a smarter, safer, more sustainable food system for all.

**A Trusted,  
Risk-Mitigated  
Supply Chain**

**An Industry Must  
For  
Future Viability**

## **PROVENANCE**

BLOCKCHAIN IMPACT ON CREDIT RATINGS:  
REDUCING COSTS AND IMPROVING ACCURACY





# Private, Permissioned Tracked and Transparent

The image displays a collection of nine screenshots from a blockchain-based supply chain management interface, organized into three rows and three columns. Each screenshot represents a different user's dashboard for tracking and managing their respective products.

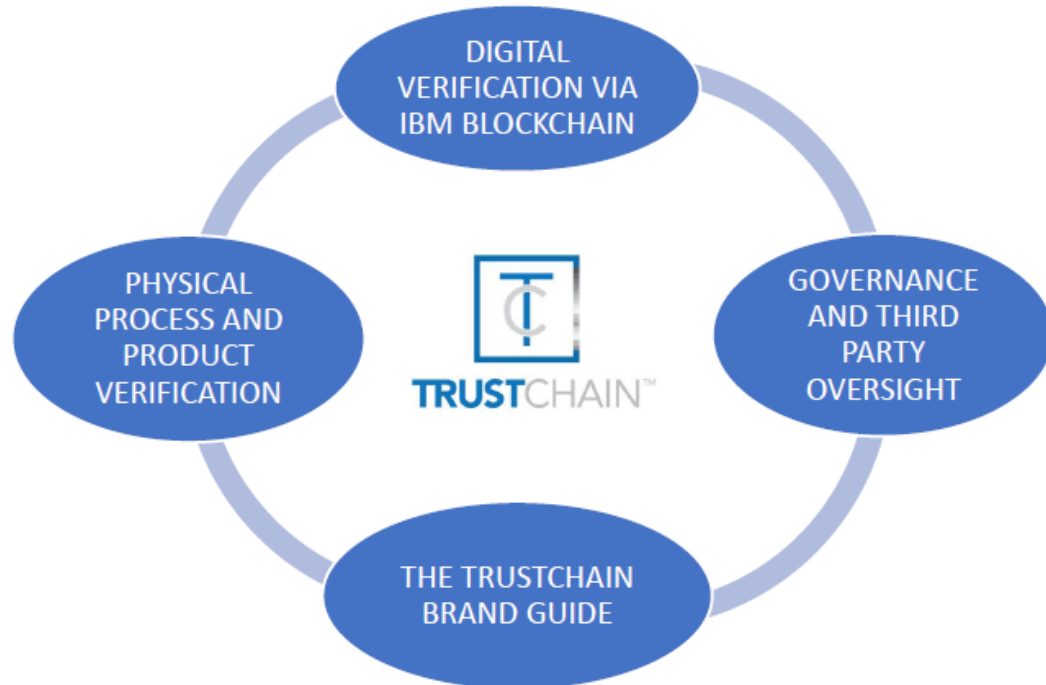
- Top Left: HELZBERG DIAMONDS DASHBOARD**
  - INVENTORY:** A grid of six diamond engagement rings with status indicators like "No stock 2 units".
  - INCOMING ORDERS:** Three order cards with status "NEW".
  - OUTGOING ORDERS:** Three order cards with status "NEW".
- Top Middle: RIO TINTO ROUGH DIAMONDS**
  - PRODUCT:** A rough diamond image and a world map with a location pin.
  - Actions:** CREATE, TRANSFORM, TRANSFER, INSPECT, EXPLORE TIMELINE.
- Top Right: ROUGH DIAMONDS - CREATE PRODUCT**
  - Form:** Fields for Product (Rough Diamonds), Quantity (84.2), Weight (500 g), and other details.
  - Buttons:** CANCEL, ACCEPT.
- Middle Left: ASAHI REFINING DASHBOARD - NEW INCOMING PURCHASE ORDER**
  - Form:** Fields for Product (24k Traceable Gold Grain), Description, Unit (1000), Unit Type (Grams), and Customer (Leach Gartner).
  - Button:** ACCEPT.
- Middle Middle: ASAHI REFINING DASHBOARD**
  - INVENTORY:** 24k Traceable Gold Grain (1000 g).
  - INCOMING ORDERS:** PO #1719000 (24k Traceable Gold Grain 1000 g).
  - OUTGOING ORDERS:** PO #1000001 (24k Traceable Gold Grain 1000g).
- Middle Right: LEACH GARTNER 24K TRACEABLE GOLD GRAIN**
  - PRODUCT:** 24k Traceable Gold Grain (1000 g).
  - Map:** World map with location pin.
  - Actions:** CREATE, TRANSFORM, TRANSFER, INSPECT, EXPLORE TIMELINE.
- Bottom Left: UNDERWRITERS LABS DASHBOARD - INSPECTIONS**
  - Grid:** Eight diamond engagement rings with status indicators.
- Bottom Middle: UNDERWRITERS LABS DASHBOARD - NEW INSPECTION RECEIVED**
  - Notification:** "The PO #1000001 has new inspection request raised by Leach Gartner. The product above will be added to your inventory." Button: ACCEPT.
- Bottom Right: LEACH GARTNER 14K GOLD 1CT DIAMOND ENGAGEMENT RING**
  - PRODUCT:** 14k Gold 1ct Diamond Engagement Ring (1 unit).
  - Map:** World map with multiple location pins.
  - Actions:** CREATE, TRANSFORM, TRANSFER, INSPECT, EXPLORE TIMELINE.



# TrustChain™: “Verified by blockchain”

## Requirements to make it happen

It is the first initiative aimed to provide **digital verification** (IBM Blockchain technology), **physical product and process verification** (UL and other third party organizations), and **third party oversight and governance** (**TRUSTCHAIN Brand Guide\***)



The **TRUSTCHAIN Brand Guide** will explain the requirements to be a "Trustchain Colleague", an entity that has gone above and beyond blockchain utilization through ongoing, documented, responsible practices.

**TRUSTCHAIN™ colleagues are not striving to be another "certification" organization. TRUSTCHAIN is about creating a trusted environment for business.**



# TrustChain™: “Verified by blockchain”

**The True Key:**

**Responsible organizations and people are the foundation....**

***....and the blockchain process is the verification.***

Trustchain™ diamond and jewelry collaborators already employ best practice in management of their supply chains, with Trustchain™ linking the parties together to provide a new level of assurance to consumers regarding the traceability of their jewelry and **trust** that they know where their product has come from.





# Development of Marketing Concepts

In conjunction with the core focus of the initial POC, we have explored potential consumer experiences that could be developed to demonstrate the provenance and authenticity of jewelry.

Consumer experiences have been grouped into 5 categories:

- Telling to story of the product, now and in the future
- The shopping experience
- Insuring the ring
- Upgrading the ring
- Selling the ring

The concept work has focused on developing an example of a consumer experience relating to telling the story of the ring from mine to retailer, and letting the individual record the story of the ring once they've received it.

A simple clickable prototype is available here:

<https://xd.adobe.com/view/a422cf91-6c57-49a9-5753-46cdcc598b23-d213/>



**The 5T's...**  
**Tracked, Traced,**  
**Transparent, Trusted , Truthful**

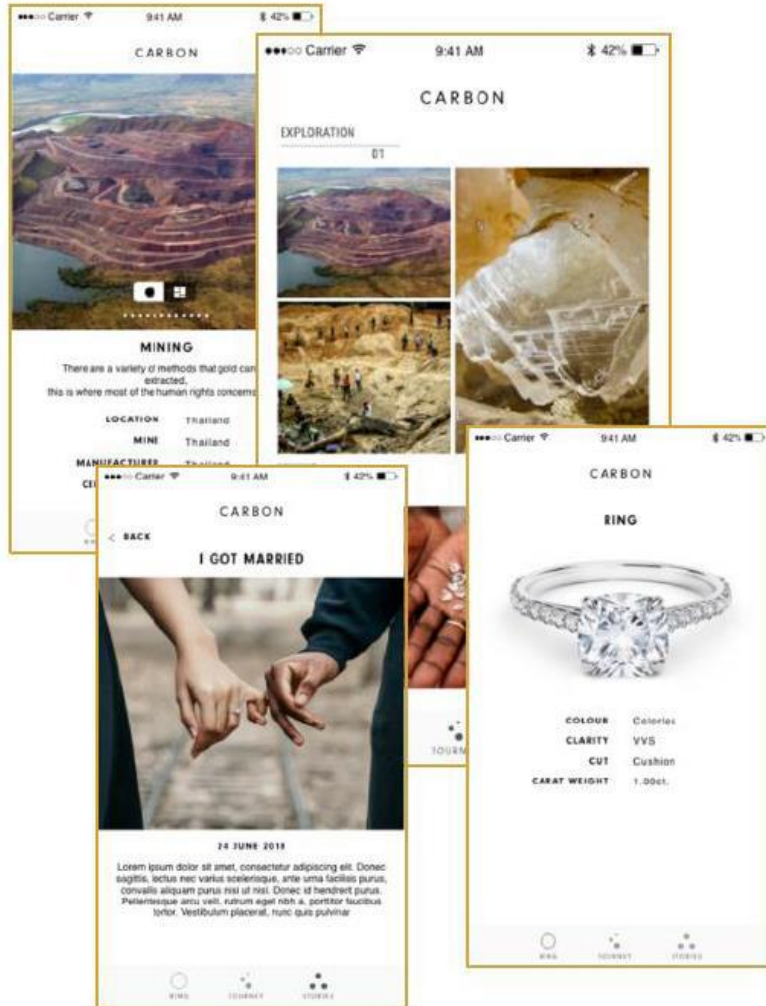




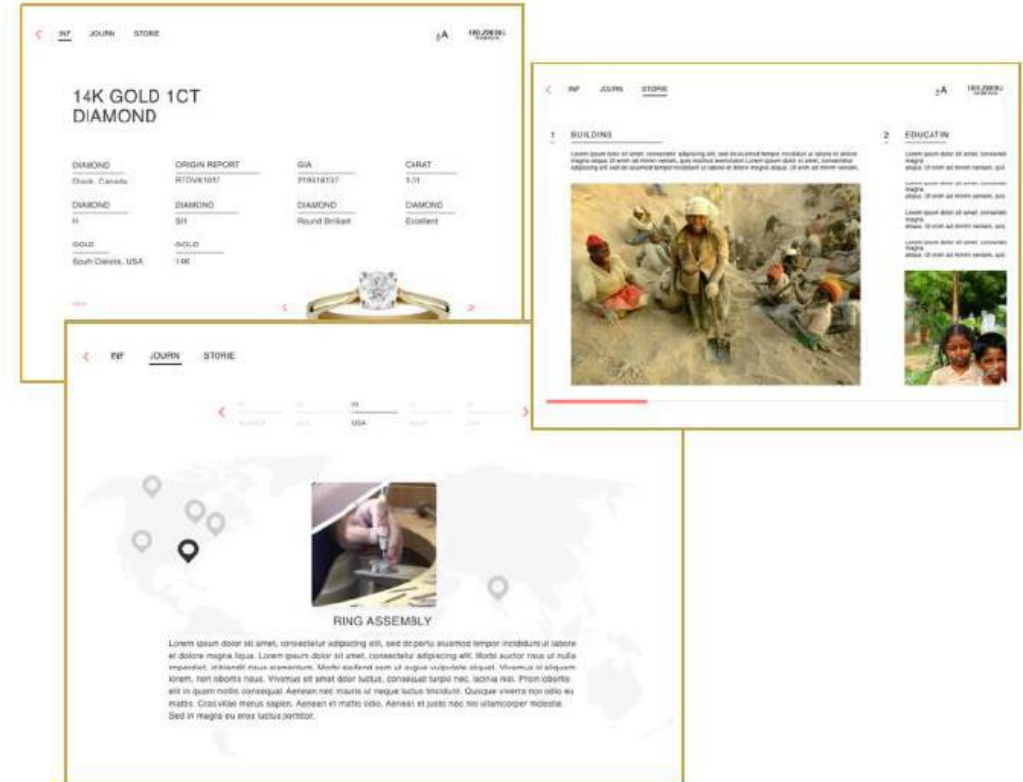
# TrustChain™: “Verified by blockchain”

## Telling the Story

INITIAL PROOF-OF-CONCEPT



## Focusing on in-store concepts



## *Our Research*

Surveying 498 of our peers at Wharton helped us to understand further that the young generation represented opportunities to the diamond industry especially in three areas:

- **their passion for online digital retail experience,**
- **deep concern over the jewelry's origins**
- **a paramount focus on individuality.**

What we found very interesting and consistent with what TrustChain is trying to deliver is that millennials are not only set to be the largest consumption power by 2020 but **also are willing to pay a premium for authenticity, individuality, and self-expression.**

TrustChain can bring unique value, especially to those young generations to not only validate the authenticity of

## The Respondent

65%

ALUMNI



Age 25-34

>\$100k

Annual household income

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## Survey Design

*Q. How likely are you to purchase gold jewelry?*

**Juster Scale (1966)**

*Q. Would you choose or pay more for socially responsible goods?*

**EMCB Scale (2016)**

*Q. Is TrustChain™ trustworthy?*

**Holmes & Rempel Scale (2001)**

# The Conscious Consumer

44%

68%

RESPONDENTS STATED THEY WOULD  
**CHOOSE OR SWITCH**  
TO ECO OR SOCIALLY-RESPONSIBLE GOODS

RESPONDENTS STATED THAT THEY WERE  
WILLING TO **PAY MORE**  
FOR **SUSTAINABLE GOODS**

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# 93%

*of respondents trust the initiative*

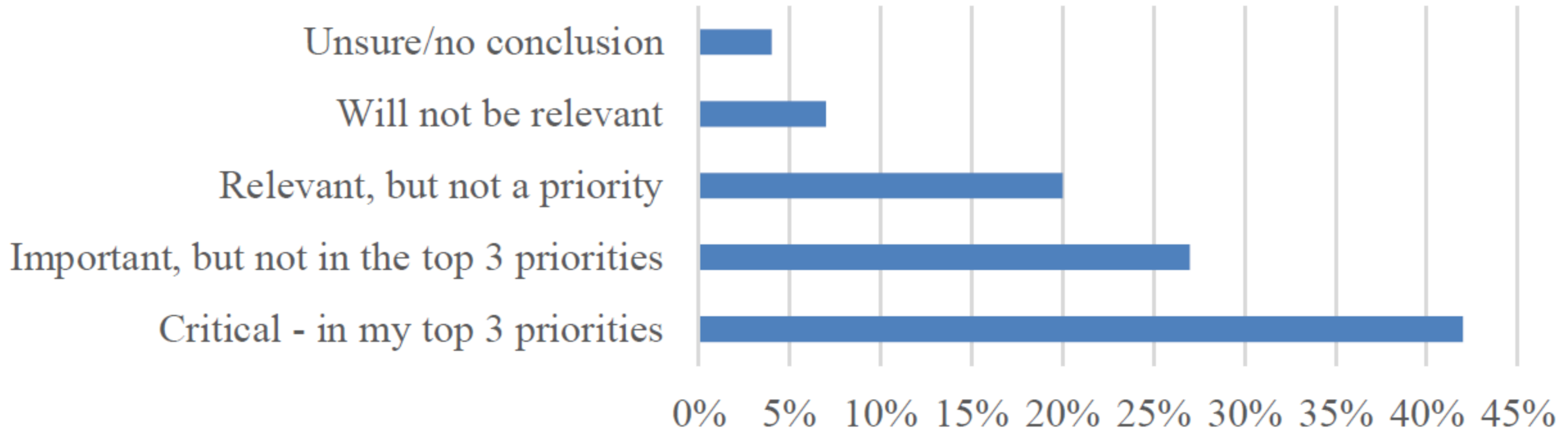
- Affluent
- Likely to purchase gold jewelry in the next 6 months
- Willing to pay more for socially responsible goods





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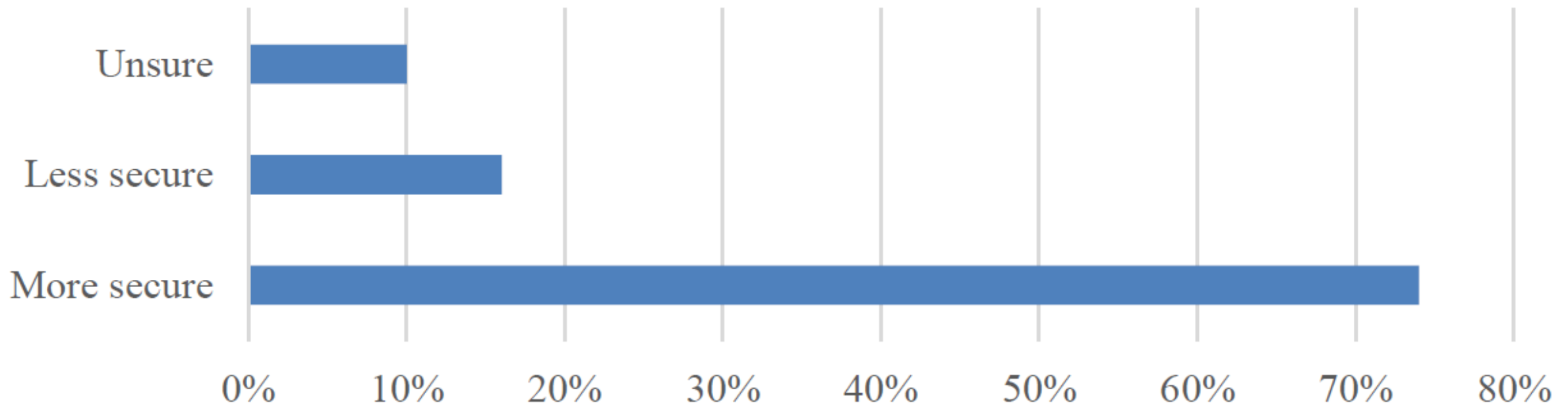
## Which of the following best describes your views on the certificate of origins for jewelry?





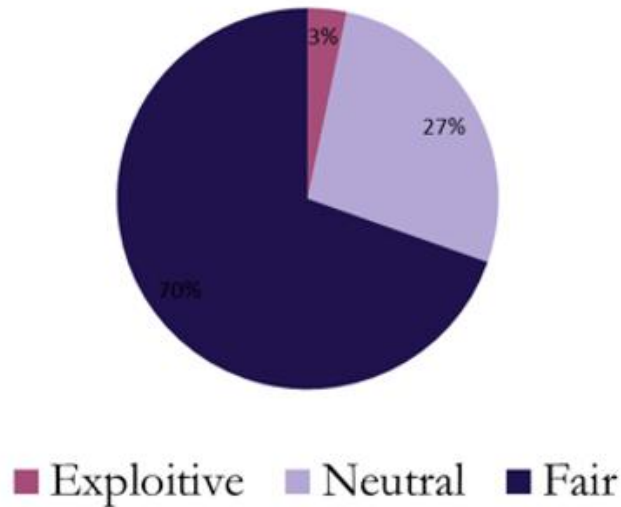
# *Is Trustchain™ Trustworthy?*

**Do you believe that blockchain-based solutions are currently more secure or less secure than conventional IT?**



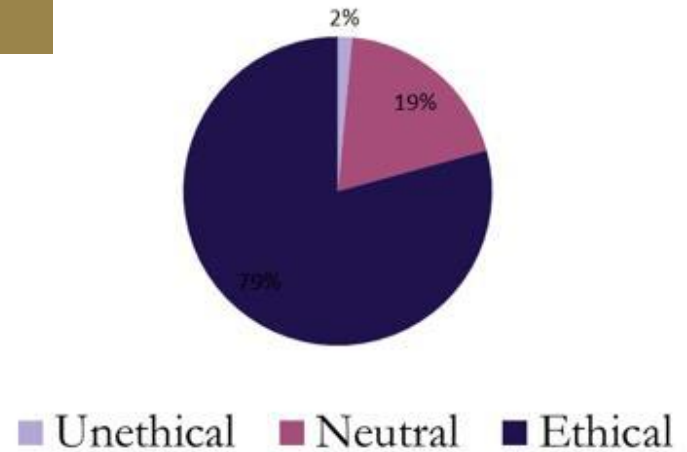
# Is Trustchain™ Trustworthy?

## How Fair is Trustchain™?

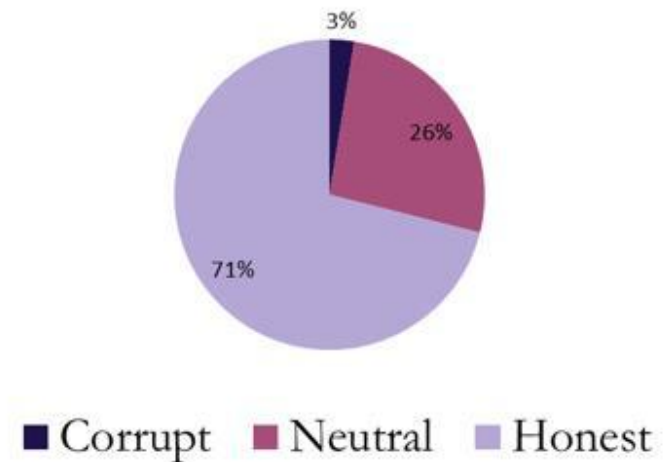


One adjustment we plan to make for our survey is to qualify the ethically-conscious respondents by incorporating an ethically minded consumer behavior (EMCB) scale. EMCB scores exemplify consumers consideration of ethics when making purchasing decisions. The important test will be a demonstration of the additional level of verification that the blockchain backbone can provide and measurement of the impact it has on perceived trust towards the product traced

## How Ethical is Trustchain™?



## How Honest is Trustchain™?





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## Next Steps

### 1. Focus on consumer concepts and retail presence

*Drawing on the results of the abovementioned online surveys we will test the results by organizing six focus panels (3 for Generation Z and 3 for Millennials) before we even launch holiday PoC in 2019.*

2. Expanding consortium for wider group of industry participants:  
Banks, Miners, Refiners, Fabricators, Manufacturers, Distributors, Retailers

3. Commercialization and scaling to a full production platform



# BLOCKCHAIN FOR SOCIAL IMPACT

MOVING BEYOND THE HYPE

Stanford Graduate School of Business • Blockchain for Social Impact

## Water and Sanitation

It is very early days for blockchain use in Water applications. Companies are experimenting with using blockchain as an efficient way to track and record water data and to create more efficient markets for these underlying resources.

For example, in Australia, the city of Fremantle is working with Power Ledger to use blockchain to create a more efficient market for water trading, similar to carbon trading markets. Others, like Clean Water Coin, are trying to use the crowdfunding advantages of blockchain to increase the efficiency of funding clean water projects worldwide.

STANFORD BUSINESS | Center for Social Innovation

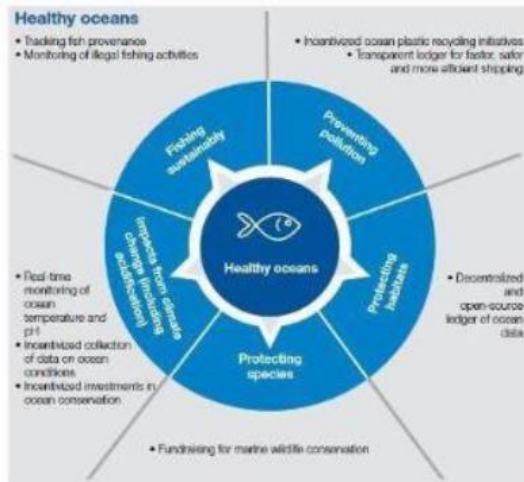
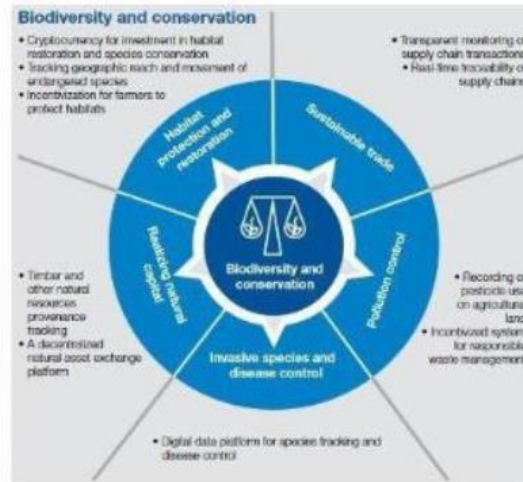
Blockchain enables Human Rights initiatives to create verifiable information streams to track individuals or rights violations across the globe.

## Human Rights

Human Rights implications of blockchain are focused on solving diverse challenges. The four initiatives we profiled during our research include two focused on stopping human trafficking or slave labor; one focused on sustainable, participatory, and affordable housing; and one that seeks to provide bail funding for low-income prisoners unable to afford it. The central utility of blockchain to these initiatives is raising and tracking funds and creating a verifiable information stream that can track individuals or claims of rights violations. For example, Stop the Traffik proposes to create the first blockchain-trackable T-shirt supply chain, through which workers can submit verification that their labor rights were respected at each stage of the production process, from cotton harvest through garment production. Most of these initiatives are in the idea or pilot phase, and all started in 2017.

**Pay attention to the progress of blockchain applications dedicated toward social impact.** Early data suggests that blockchain can provide incremental (65% of initiatives) or transformative solutions (25% of initiatives) for people solving our world's toughest challenges. As more and more initiatives move from pilots to programs, closely monitoring their progress will make sure that proven use cases rise up beyond the hype to gain further support and adoption.

# Blockchain applications by challenge area



## BLOCKCHAIN FOR GOOD

### HUMANISING THE BLOCKCHAIN

“We do require a federated model - a guiding hand, to set the vision and principles to enable its success, for the greater good - whilst allowing verticals or countries to govern their specific areas. To be clear, this is not a government, a centralised organisation or even regulation - but policy and principles that document a duty of care for blockchain technology.”

*But jewelry is more than just beautiful –  
it can also do good in the world.*

*There's the joy of finding and wearing a beautiful thing that fed a family, educated a child, or supported an artist.*

*It isn't easy, but more and more jewelry companies are doing the work of creating ethical, responsible jewelry.*

*And as long as consumers continue to ask for it, responsible jewelry options will continue to grow.*





*Thank you!*



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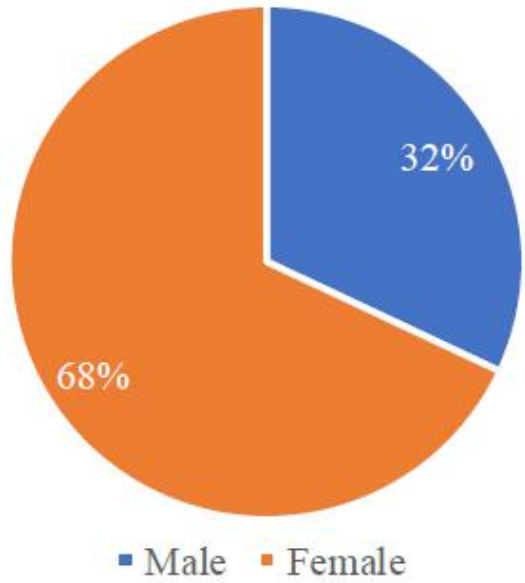
**Contact:**

**[Mark.Hanna@richlinegroup.com](mailto:Mark.Hanna@richlinegroup.com)**

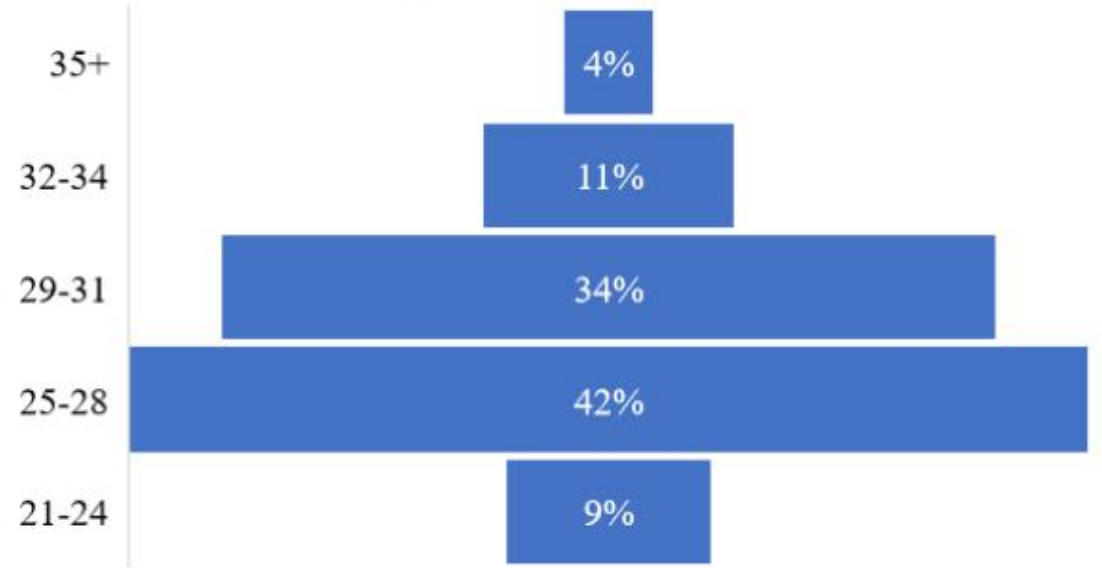


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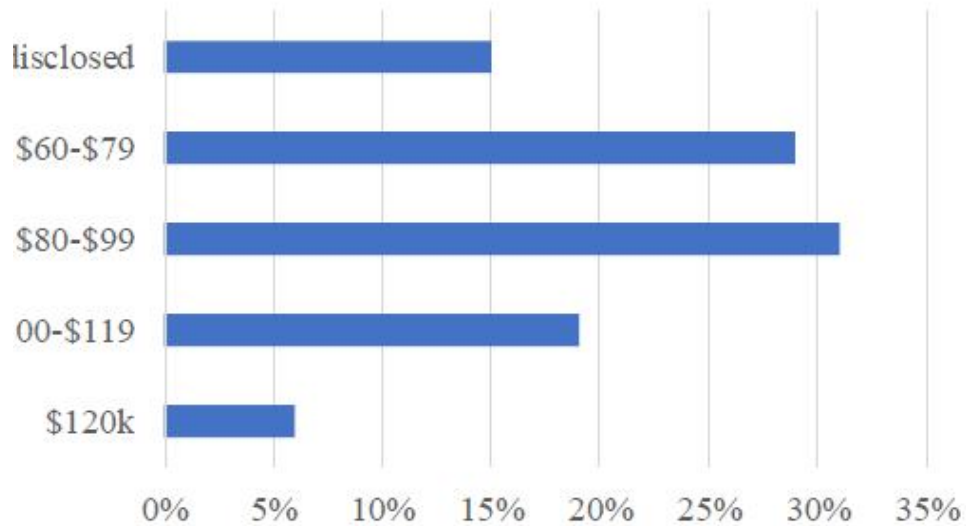
### Sample Gender Distribution



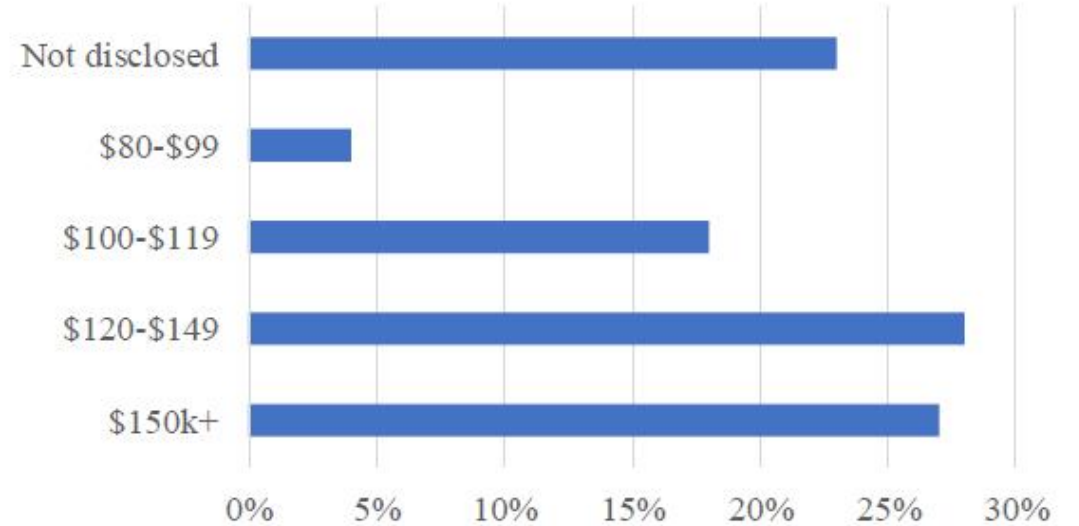
### Sample Age Distribution



### Pre-School Avg. Base Salary



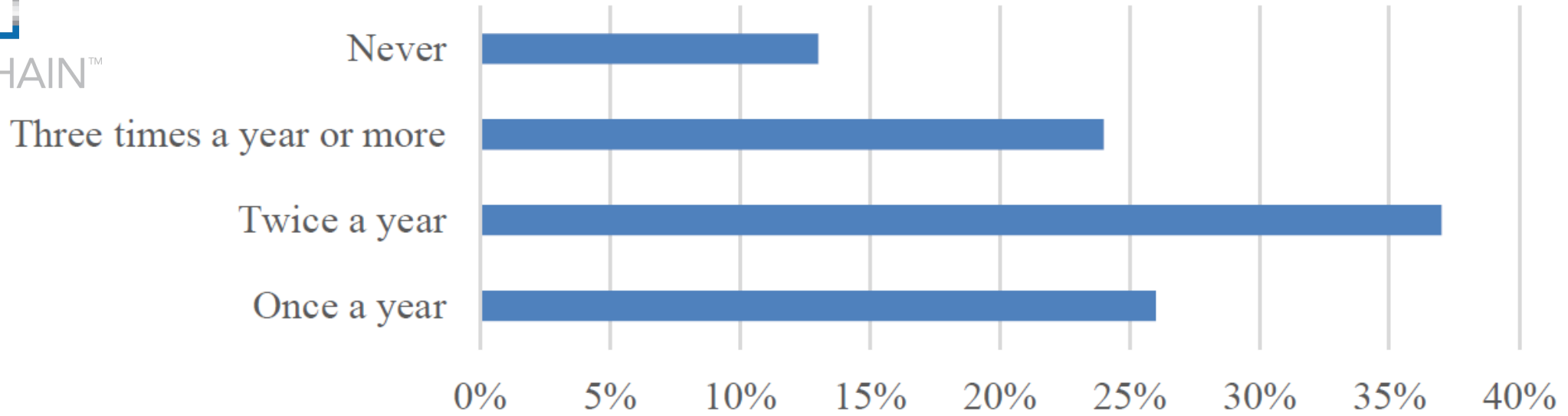
### Post-School Avg. Base Salary Estimate





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## How frequently do you shop for jewelry?



## Where do you shop for jewelry?

