Circular Supply Chain Hackathon Oct 2022

Context for the Circle of Trust

The future is becoming more and more reliant on circularity and digital interactions. With these significant changes there are exciting new opportunities and challenges. One of the most pressing problems is how to provide secure places for trusted exchanges (data, materials, financials) to occur between "untrusted" parties – those who don't know each other, or don't hold long-term contracts.

Trust is vital for this future to produce its greatest impact and applying uniform standards globally has proven itself in many previous endeavors as a key mechanism to accelerate adoption and demonstrate value for active and passive stakeholders.

In this hackathon, we are seeking your creativity and ideas to develop real-world solutions for this crucial area of focus that will define the future of circularity for generations to come.

Imagine One Process in a Circular Supply Chain

One process of a circular supply chain is sourcing circular inputs. Let's imagine that the process for one of our inputs is fully automated.

The process goes like this:

1. **The need:** We issue a request for what we need, based on the characteristics of the material. As a requirement, the supplier must be within 100 miles and have auditable and visible provenance for the material, proving it is fully circular.
2. **Selection:** Bids and selection happen automatically, exchanging the needs with several materials marketplaces. The supplier selected may be "unknown" to us – as in, we don't hold a contract with them, but one is created on the fly with the terms that align between our organizations.
3. **Transportation**: The transportation provider is selected based on volume and timing. Routing is completed automatically.
4. **Receipt**: The shipment arrives to our factory and machine vision is used to complete a quality audit.
5. **Payment**: The three-way match (among purchase order, shipment, and invoice) is completed, and the supplier – known to us - gets paid. This payment happens through a decentralized network.

In this automated scenario, everyone is anonymous and exchanges data through data ecosystems and networks.

Now, Let's Imagine It Goes Wrong

Each area below focuses on a way that this circular supply chain process that can go wrong. By focusing on the risk in this scenario, we can work together to create stronger circular supply chains. For each consider how trust can validated between unknown parties.

Supply Chain: one day, a shipment is late. Another day, the delivery is damaged. And yet another, materials are missing. How is it possible to manage the performance of partners that are unknown to us?

Circular Economy: a supplier's supplier has failed an audit and is using virgin material sporadically in place of circular material. How is it possible to trust a material's origin?

- **Note:** considerable bonus points will be given for teams leveraging GS1 standards in this area. Please explain which standard is used, what benefit this standard would bring used, and how it would be implemented.

Innovation/ Entrepreneurship: this scenario will require a business model that can continually adapt and provide value to all parties. What business model is most appropriate to enhance trust between untrusted parties? Include the following areas of a business model canvas: key partners, key activities, key resources, and value proposition.

Cybersecurity: a security breach takes your operation offline for 48 hours. What are the biggest threats to the scenario described and challenges to developing trust in such a system? Why you think those are the most important ones?

- **Bonus**: on Wednesday, Oct 19 we will release a second layer of this challenge, specific to cybersecurity. Your challenge will be to creating a functioning prototype and the team with the best prototype will get a bonus of $1,000 total. Stay tuned for more details!

Your Challenge

Your challenge is to create practical solutions to the ways this circular supply chain scenario can go wrong and how to create a stronger Circle of Trust.

Submit a solution that clearly and completely answers:

- **Supply Chain:** how is it possible to manage the performance of partners that are unknown to us?
- **Circular Economy**: how is it possible to trust a material's origin?
- **Innovation/ Entrepreneurship:** what business model is most appropriate to enhance trust between untrusted parties?
- **Cybersecurity**: what are the biggest threats to the scenario described and challenges to developing trust in such a system? Why you think those are the most important ones?

Solution Format

The solution will have two parts:

1. A written white paper that outlines the overall solution to this scenario, broken into the four areas outlined (supply chain, circular economy, innovation/ entrepreneurship, cyber security). Max length: 6 pages.
2. A video that highlights the key answer to each of the four questions. Max length: 2 minutes.

Bonus: for teams looking for an added bonus, an additional cybersecurity challenge will be issued on Wednesday, October 19th. Stay tuned for more details!

Please submit these solutions via Discord (detailed instructions will be provided) by October 30, 11:59pm PDT.

Judging Criteria

Winners will be announced by Monday, November 14, 2022. Each winning student will earn $500.

(1) **6 points:** supply chain: completeness of a performance management approach.
(2) **6 points**: circular economy: viability of solution to trust a material's origin.
    a. **Up to 3 bonus points** available: Please explain which GS1 standard(s) can be used in this solution, what benefit this standard would bring used, and how it would be implemented.
(3) **6 points**: innovation/ entrepreneurship: clear and complete answers to the following areas of a business model canvas: key partners, key activities, key resources, and value proposition.
(4) **6 points**: cybersecurity: clear articulation of the biggest cybersecurity threats in this scenario and why these are the most important ones.
(5) **3 points**: quality of written submission
(6) **3 points**: creativity and focus of video submission
(7) **Up to 6 bonus points**: 2 points for each additional university represented. For example, if your team has 3 universities represented, you'll get 4 extra bonus points.

An additional criteria list will be issued for the cybersecurity prototype challenge.

Fine Print

You may hear from Circular Supply Chain Network or GS1 US in the future about student challenges and events.