AI EarthHack Problem Statement

Welcome to a unique collaboration opportunity for you to work with the renowned Laboratory for Innovation Science at Harvard (LISH) at the Digital, Data, and Design Institute (D^3) at Harvard University and DotsLive, an innovative platform for talent recruitment. This partnership focuses on sourcing the most innovative and effective generative AI algorithms to find the best sustainable, circular economy business ideas in the world.

The Concept: Understanding Circular Economy

In today's rapidly evolving world, climate change stands as a formidable problem, deeply influencing our daily lives and the health of our planet. The circular economy, with its focus on reusing and recycling resources to minimize waste, emerges as a crucial strategy in this battle. Innovations like car-sharing platforms significantly reduce the carbon footprint of transportation, while modular designs in various products promote waste reduction by allowing individual components to be upgraded rather than discarding the entire item.

In the face of climate change's criticality, the urgency to identify and implement high-impact circular economy solutions has never been greater. The challenge we confront today, however, extends beyond coming up with solutions to confront this problem. It lies in the daunting task of effectively evaluating a vast and diverse array of solutions, discerning the most impactful ones amidst a sea of possibilities. This process can be overwhelming, given the complexity and the sheer volume of potential solutions, leading to cognitive overload for human evaluators.

AI EarthHack invites you to leverage the transformative power of generative AI in developing an AI-powered decision-support tool. Such a tool would not only streamline the evaluation process but also enhance the accuracy and efficiency of selecting the best solutions. By augmenting human judgment with AI's analytical capabilities, we aim to spotlight those innovations that hold the most promise in addressing the pressing issue of climate change through the principles of the circular economy.

Your Role: The Hackathon Challenge

During AI EarthHack, your challenge is to evaluate innovative circular economy business opportunities that were crowdsourced from an exciting innovation contest to Unlock the Potential of a Circular Economy in Spring 2023. The contest encouraged individuals to submit their real-life use cases on how companies can implement the circular economy in their businesses. New ideas were welcomed, even if they were moonshots.

Your task is to develop an algorithmic tool that features generative AI to assist in the evaluation of these ideas. Think of it this way: the intent of the tool is not to replace the savvy of human investors; rather, the purpose is to make their decision-making sharper, more efficient, and possibly less prone to their behavioral biases. Take a venture capital (VC) expert, for instance, who's got a stack of potential startup pitches to evaluate. Your AI tool could step in to sort these pitches, highlight key insights, or even flag spams. But it's not just VCs who'd find this tool useful. Angel investors, corporate innovation teams, and even grant committees could use it to sift through proposals, identify the most promising ones, and make informed decisions. By pairing AI with human expertise and insight, we're making the process of evaluating and choosing projects – whether startups, corporate innovations, or research initiatives – more streamlined and effective without compromising fairness.

Suggested Directions: Where to Start?

We're enthusiastic to see a variety of creative solutions and approaches to idea evaluation. Feel free to think big – we're open to bold, unconventional ideas! Below we propose a few starting points to help you begin exploring the space. You are welcome to choose one, a few, or all of these frameworks or ***go beyond them***. Creativity in conceiving your own unique solution is highly encouraged. However, it should not be at the expense of depth and quality.

An **idea validator** advises human evaluators by developing clear rationale and ratings for essential metrics such as maturity stage, market potential, feasibility, scalability, technological innovation, or adherence to circular economy principles. Ideas that meet (self-)predefined criteria will be highlighted to human evaluators.

A **moonshot finder** identifies exceptionally ambitious and potentially revolutionary ideas that offer substantial returns but also carry a greater risk of failure. It emphasizes the novelty aspect of an idea and points to its potential for breakthroughs. This tool particularly highlights ideas that might seem unconventional to experts in their respective domains–to prevent them from being overlooked by conservative human evaluators.

An **idea filter** is designed to weed out ideas that are sloppy, off-topic (i.e., not sustainability related), unsuitable, or vague (such as the over-generic content that prioritizes form over substance, offering generalities instead of specific details). This filtration system helps concentrate human evaluators' time and resources on concepts that are meticulously crafted, well-articulated, and hold tangible relevance.

Dataset

This hackathon uses solutions sourced from the Digital Data and Design (D^3) Institute at Harvard's crowdsourcing contest to create a sustainable future by "Unlocking the Potential of a Circular Economy". The solutions were sourced all over the world in various ways with circular economy applications to a wide array of industries, ranging from textiles to food waste management. The dataset contains circular economy business ideas that come in problem-solution pairs. Participants were asked about the problem their solution is meant to solve and describe the solution in their own words. You will be receiving the anonymized, de-identified, and unfiltered data that we curated from this contest.

Deliverables: Expectations from the Teams

In this hackathon, participating teams are tasked with submitting a comprehensive overview of the team and their innovative tool, including team information and team roles, a project summary, a detailed description highlighting technical and creative aspects, and a demonstration of the tool in action.

Deliverables encompass a walk-through demo in a format of your choice (video, presentation, etc.) **and** a GitHub repository. If you were selected to be a finalist, we would require a fully functioning product/interface which you will present to judges in-person at Microsoft HQ in Toronto on Jan 18th! Please click on the submission form for details.

Criteria: How Do We Find the Winner?

Completeness (20 Points)	**Technical Execution* (20 Points)**	**Novelty (20 Points)**	**Feasibility (20 Points)**	**Value (20 Points)**
Submission includes all essential components: comprehensive overview, detailed description, and a demonstratable proof-of-concept model.	*Flawless technical implementation, including aspects of reliability, trustworthiness, and explainability to help users understand the algorithm's choices.*	*Presents unique, creative approaches by employing new technologies or novel applications of existing ones.*	*Practical with a clear path to implementation; likely to be successfully completed with a fully functioning prototype/interface.*	*Offers substantial promise in enhancing human evaluators' decision-making processes through its user-friendliness as an assistant tool.*

Total: 100 points

*We will be using a curated "test set" that is similar to the structure of the given dataset to evaluate the quality of your submitted algorithmic tool.