IMPACT SCOPE

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INTRODUCTION

PERSONAL INFORMATION

- COO / Chief Sustainability Officer at ImpactScope
- MBA in Sustainable Business and PhD in Computer Science
- ImpactScope uses Blockchain and AI to create sustainable impact, particularly concerning MRV tools

OBJECTIVE OF THE PRESENTATION

- Start-up experience on how Blockchain, with the support of AI, can be used to overcome global sustainability challenges and reach SDGs

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WHAT ARE BLOCKCHAIN AND AI

BLOCKCHAIN

- Shared electronic register
- Used for different types of applications (mean of payment, property rights, traceability, notary registry, etc)
- Brings transparency, traceability, disintermediation and trust
- Deterministic outcomes based on Smart Contracts

ARTIFICIAL INTELLIGENCE

- Aims at replicating human intelligence
- Can interact with real-world assets
- Black box

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WHY BLOCKCHAIN AND CAN BE COMPLEMENTARY

Blockchain is the trust machine

Every transaction made on a blockchain is permanent, transparent, and immutable

AI suffers from the black box problem

AI possesses unparalleled data processing capabilities but it suffers from the black box issue

BLOCKCHAIN CAN LAY THE FOUNDATIONS FOR A SUSTAINABLE AND FAIR AI

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BLOCKCHAIN FOR SUSTAINABILITY: MAIN USE CASES

Supply chain

Infrastructure

Tokenization

Financing

Decentralized identity

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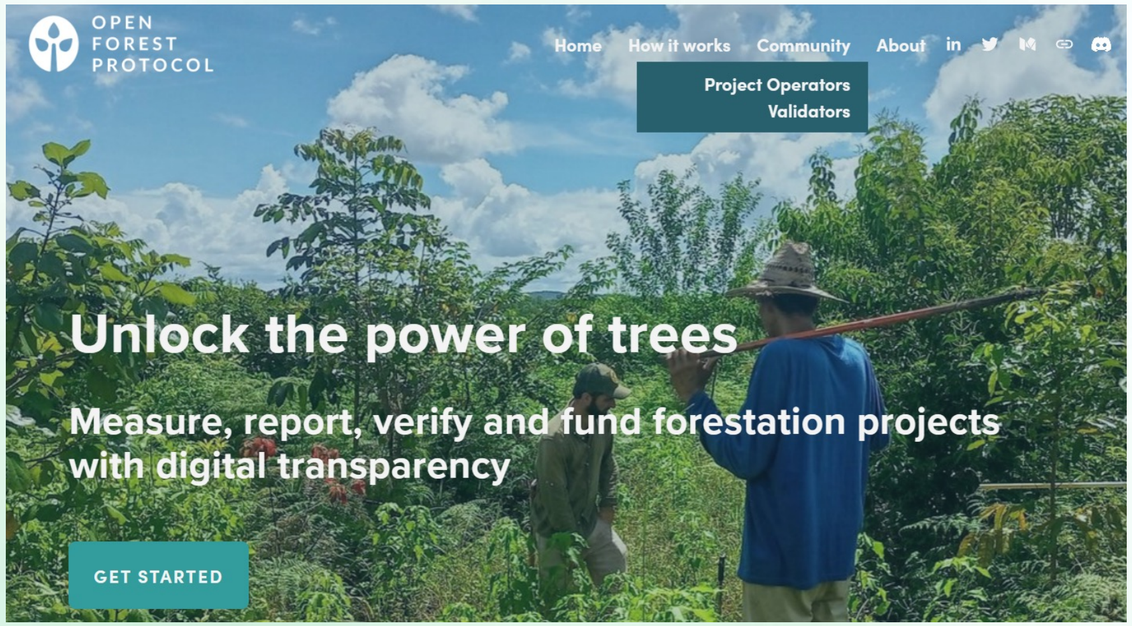
Traceability: Open Forest Protocol



- Leverage Blockchain to support climate actions
- Increasing focus on impact created instead of amounts invested
- Expanding market for dMRV (digital Reporting, Monitoring and Verification)

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Decentralized identity

- Significant difficulties in personal identification across different platforms
- Requirements for AML and KYC
- Increasing need to create a decentralized identity repository and connecting databases
- Need for interoperability in Blockchain solutions
- More than 1 billion people without proof of identity

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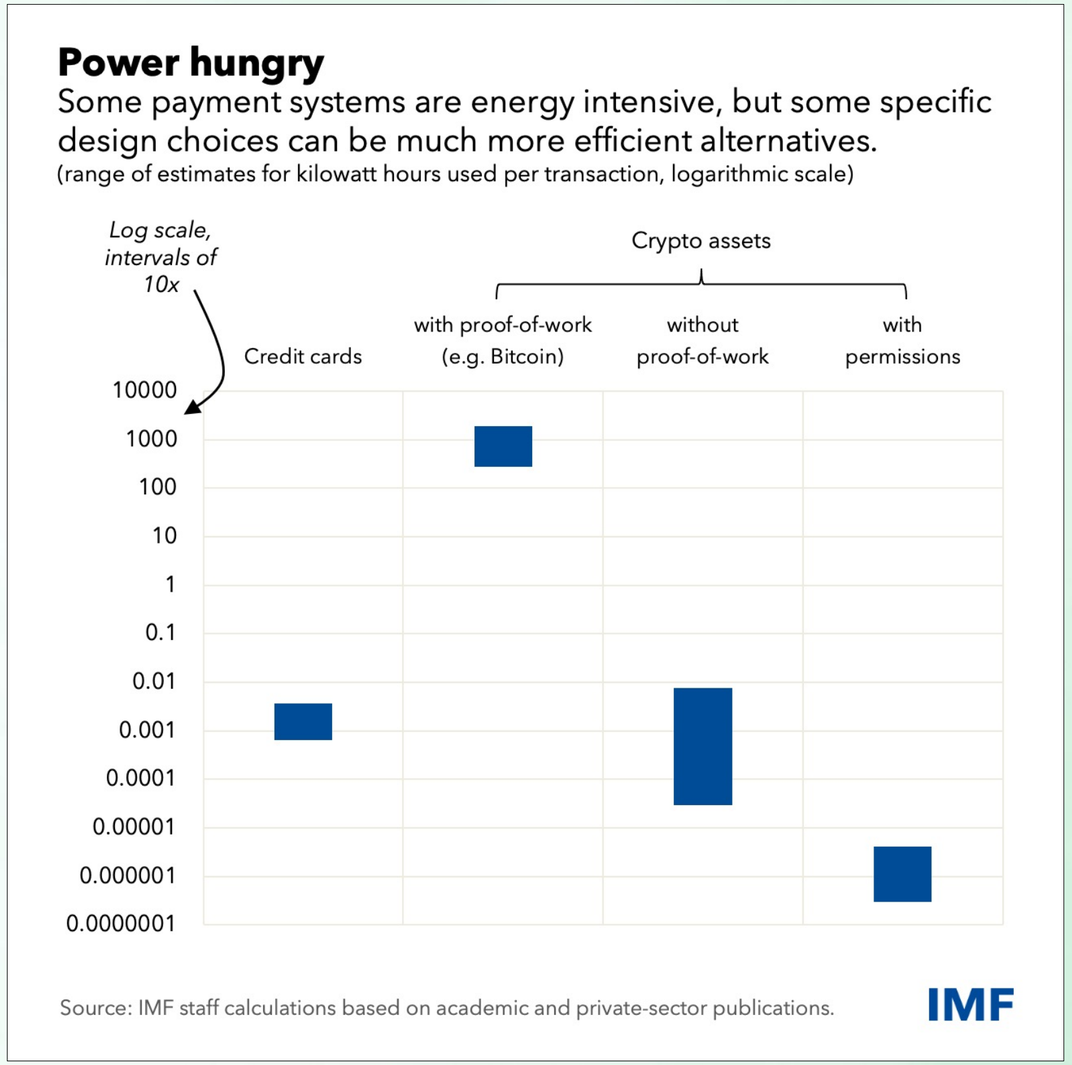
THE ELEPHANT IN THE ROOM: ENERGY CONSUMPTION OF BLOCKCHAIN

The energy cost of a single Bitcoin transaction could power 1.5 American homes for a day - Vice

- **As of today, one Bitcoin transaction has a CO2 footprint of 748,743 VISA transactions or 56,305 hours of watching Youtube. - Digiconomist**



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DEEP DIVE THE CO2 MARKET

- Increasing need to manage CO2
- Global carbon pricing nearing 100B USD in 2023
- Covering approximately 23% of all CO2 emitted
- Significant variability in market prices of CO2
- Lack of transparency
- Problem of double spending
- Possibility to extend it to other asset classes

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DEEP DIVE THE CO2 MARKET

THE ECOTA ECOSYSTEM MAPPING AS A REFERENCE

Hide fields | Filter | Group | Sort | ...

	Project name	Website	Description	HQ City	HQ Country	Year Creation	Token ticker	Blockchain
1	Open Forest Protocol	https://www.openforestpro...	a complete digital overhaul...		Switzerland	2021	OPN	NEAR Protocol
2	Gainforest	http://gainforest.net	a transparent, scalable platf...	Zurich	Switzerland	2017	NFTrees	Solana
3	Avano	https://linktr.ee/Avano_io	a regenerative NFT market...	Distributed	Distributed	2021		Not known
4	Solid World DAO	https://www.solid.world/	a DAO liquidity solution to ...	Tartu	Estonia	2021	SCT	Olympus
	Regen.network	https://regen.network/	Regen Network, an all-in-o...	Delaware	United States	2018	REGEN	Cosmos
6	Reneum	https://reneum.com/	a climate tech solution allo...	Singapore	Singapore	2019		Ethereum Polyg
7	Earthbanc	https://earthbanc.io/	a project financing carbon ...	Stockholm	Sweden	2019		Regen Ledger
8	Treejer	https://www.treejer.com	a decentralized reforestatio...	Tallinn	Estonia	2018		Ethereum Polyg
9	ecoriseDAO	https://ecorise.finance/	a DAO investing in earth ec...	Distributed	Distributed	2021		Solana
10	Coorest	https://coorest.eu/	a decentralized carbon cre...		Estonia		NFTrees, CCO2, POCC, CRST	
11	dclimate	https://www.dclimate.net/	an immutable record for cli...		United States	2021		Ethereum Chain
12	Open Earth Foundation	https://www.openearth.org/	an independent climate acc...	Los Angeles	United States	2020		Hyperledger
13	Climatetrade	https://climatetrade.com/	a service that allows individ...	Valencia	Spain	2017		Ethereum
14	CO2ken	https://www.co2ken.io/	a project which tokenizes c...	Berlin	Germany	2020		
15	Nori	https://nori.com	a company on a mission to...	Seattle	United States	2017	NORI, NRT	Ethereum Polyg
16	Verity Tracking	https://www.veritytracking....	a startup project developin...	Denver	United States	2020		Ethereum Polyg
17	Changeblock	https://www.changeblock.c...	a platform connecting proj...	North Lambeth	United Kingdom	2021		Ethereum Polyg

180 records

[European Carbon Offset Tokenization Association (ecota.io)]

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DEEP DIVE THE CO2 MARKET

THE MAIN CLASSES OF THE ECOTA ECOSYSTEM MAPPING

- Financing
- dMRV
- Tokenizing
- Retiring
- Trading
- Others

ECOTA
EUROPEAN CARBON OFFSET TOKENIZATION ASSOCIATION

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REGULATORY NEED FOR ENVIRONMENTAL DATA

Increase in the need to manage environmental assets

- Sustainability reporting
- CO2 offsetting and insetting
- Greenwashing regulation, EU taxonomy
- CBAM (Carbon Border Adjustment Mechanism)
- Focus on impact created

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DEEP DIVE AI AND BLOCKCHAIN FOR SUSTAINABILITY

Report Sustainable AI, How can Blockchain help?

Written the Sustainability WG at the Crypto Valley Association

Aiming to propose key sustainability levers for AI development and discuss the role of Blockchain, with examples

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DEEP DIVE AI AND BLOCKCHAIN FOR SUSTAINABILITY

ETHICAL USE OF AI

HOW? RESTART: Restrain able, Effective, Secure, Transparent, Accessible, Representative, Trusted

Public smart contracts, decentralized decision-making

GREEN AI

HOW? Optimized computation, reusable energy sources, carbon offsetting

Energy marketplaces, tracking energy usage and emissions, decentralized energy management

OPEN SOURCE

HOW? Pre-trained AI models, cloud-based platforms, open source tools, AI education, fairness & transparency

Decentralized & secured data ownership, transparent smart contracts, data marketplaces

DEEP DIVE AI AND BLOCKCHAIN FOR SUSTAINABILITY

RESTART applied to CO2 offsetting

Attribute	Support of AI and blockchain
Restrainability	Ability to emit carbon credits limited to quality projects AI supports the identification of suitable areas to maximize CO2 sequestration Blockchain for audit trail of decision-making process
Effectiveness	AI suggesting resource management strategy to minimize CO2 emissions Smart contracts send red flags if required conditions are not met
Security	AI identifying security breaches for unusual patterns Smart contracts automatically enforce remediation Blockchain infrastructure easing remediation
Transparency	Blockchain visible to the public (e.g. reforestation) with data modified only by pre-determined stakeholders AI support in reforestation process built with explainable AI principles
Accessibility	Technological solutions used should not limit the use to experts
Representativity	Carbon offset products with a broad variety in geography and type of products AI proposes ideal mix of projects to improve biodiversity
Trust	Blockchain as the single source of truth AI proposing tokenomics models leading to the desired behaviour

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DEEP DIVE GWI

Using AI and Blockchain to identify greenwashing

Sustainability claim #1:

In 2020 we announced our target of Net Zero in our operations by 2030.

Data source: Sustainability Report

Sustainability claim #2:

In 2019 we made €5 b available for green projects and last year we set a target for 70% of our lending to be green by 2030. We also became the first Irish bank to pledge to operate as carbon neutral by 2030.

Data source: Twitter

AI module used to identify inconsistencies in financial information

Blockchain used to store greeenwashing reports identified and original data-source

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DEEP DIVE GWI

Introduction to the tool

AI + Blockchain powered greenwashing identifier on Vimeo

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What is greenwashing?

- **Inconsistency** is a discrepancy of certain information
- **Unsubstantiated claim**: a claim made without qualification or that is not supported with appropriate evidence
- **Omission**: the failure to disclose a meaningful piece of information
- **Exaggeration**: an overstatement of certain information

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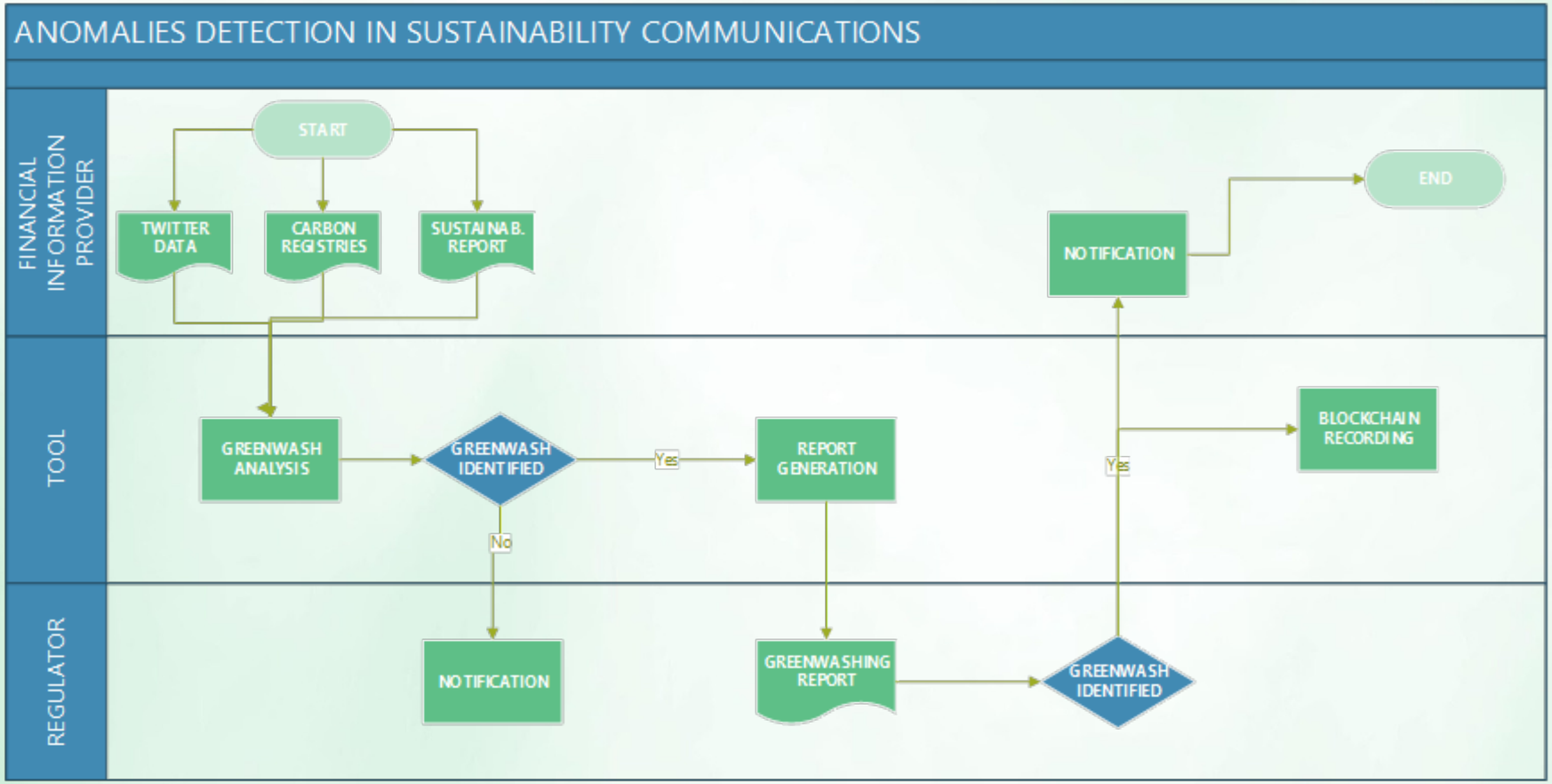
The architecture of the tool



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DEEP DIVE GWI

The challenges and open issues

- Ambiguity of natural language and greenwashing
- Training the model
- Evaluation
- Categorization of gravity of greenwashing instances

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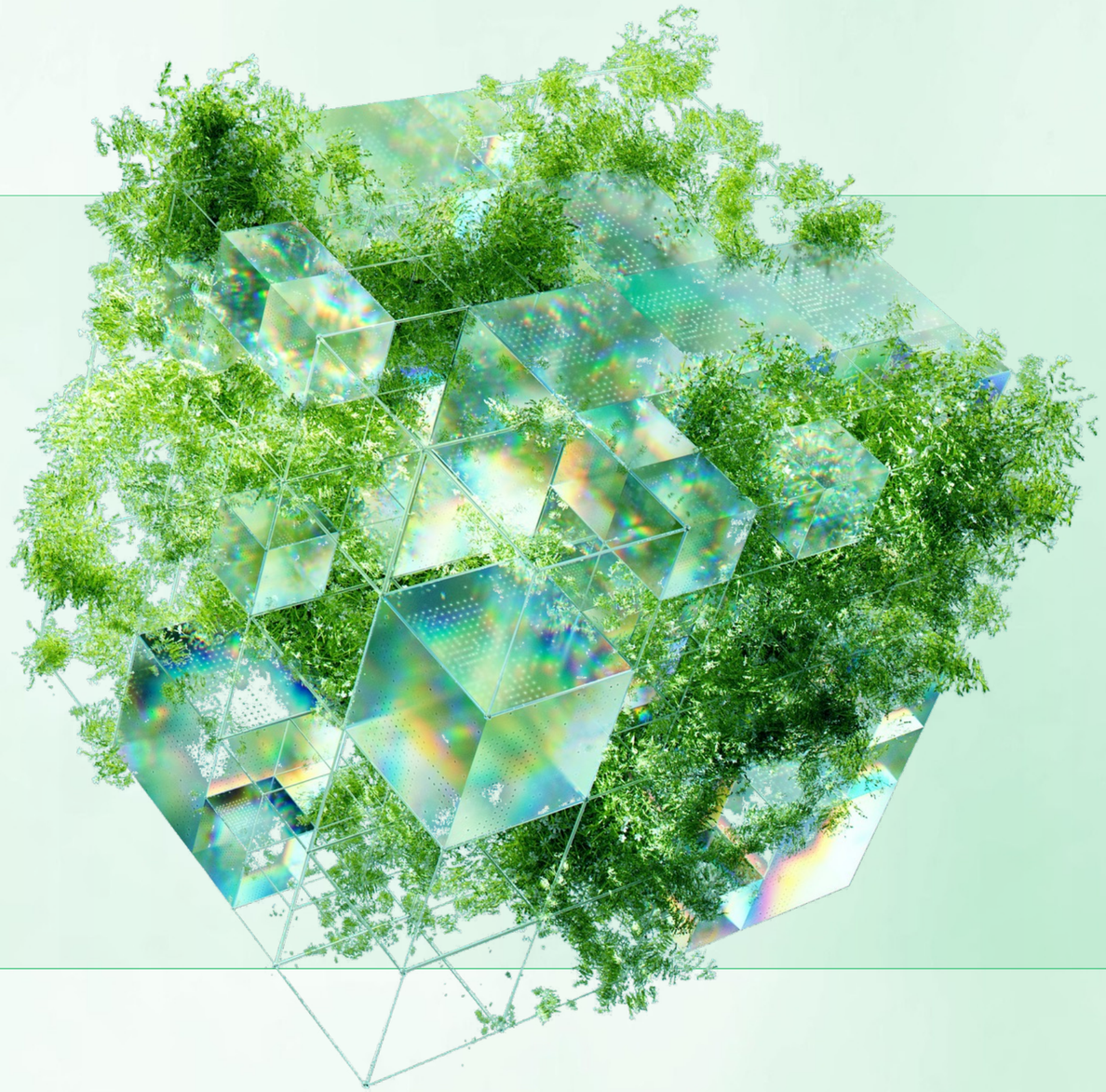
Thank you!



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