SUSTAINABILITY | ENERGY TRANSITION | DEEP TECH

infoeaze

HORIZONS BEYOND

Future of ESG Data Verification

PUBLICATION

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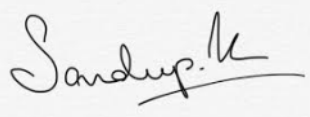
DATE
July 2020

Sponsored by

creas
ENERGY CONSULTING

Foreword

Infoeaze aims to 'build trust in digital identity and solve important problems'. Verification-as-a-Utility Business Model, published recently, explored the potential of blockchain technology to transform background verification using World Wide Web Consortium (W3C) Verified Credentials data model 1.0. This study on the role of deep tech for ESG data verification, focusing on sustainability, is a natural successor to that work and reflects developments in global understanding of ESG data. Our sponsor, CREAS, is active as advisor, technology implementer, and consulting partner both in the energy transition space and in creating sustainable solutions for tomorrow's energy challenges. CREAS believes that there is currently huge potential for deep tech to be a transformational technology within the energy transition value chain, and, accordingly is carrying out advisory work supporting green hydrogen, green ammonia and waste management services, among others. Infoeaze has advised the world's top fast moving consumer goods (FMCG), top British utility provider and global energy solutions consulting organisation's, deploying its first enterprise solution in 2019. Infoeaze is grateful to CREAS for their support which has allowed us to undertake this important and timely joint publication.



Sandeep Krishnappa - Chief Product Officer
Infoeaze Digital Services Private Limited

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1. Introduction

Amid the global wildfires due to climate change, Covid-19 pandemic and the Black Lives Matter movement dominating headlines in 2020, progress in sustainable practices is more critical today than ever before. There is a clear need to change our habits, attitudes and working practices on a larger scale than we can imagine.

A progressive mindset today around sustainability, by taking the first steps to solve challenges is more of a practical advancement than a vision of achieving perfection, tomorrow. Increasing numbers of organisations are currently incorporating environmental, social and governance (ESG) factors into their decision-making approach to progress the sustainability agenda. The ESG factors focuses differ, depending on the industry and business model, but it describes how a business impacts the world around it. Some of the outcomes of taking a progressive approach around sustainability in decision making, today, leads to:

- **Transparency:** Builds trust among wider stakeholders, resulting in improved brand reputation in the market;
- **Increased employee engagement:** Mirroring individuals' personal values in the workplace results in better recruitment and talent retention;
- **Investor confidence:** Disclosure of more non-financial data pertaining to the inner workings and operations of the business results in better access to capital and impact investors

Failure to incorporate sustainability in decision making, in the past, has lead to

- **Governance failures:** For example, AskMe , an e-commerce company, kept vendors and employees waiting for payment as a result of social and governance failures. This led to the organisation losing trust among wider stakeholders and resulted in a negative brand reputation in the market and led to closure[1].

- **Employee activism** instead of employee engagement**:** For example, employees turning to activism (Amazon/Microsoft/Google) to protest selling deep tech to upstream oil & gas companies for fossil fuel extraction; police forces using facial recognition surveillance. There is also an increased activism momentum around issues related to diversity, LGBT, equal pay and sexual harassment in the workplace[2] [3].

- **Stranded assets or discounted valuation** instead of investor confidence**:** Due to external changes in technology, markets and societal habits, stranded assets are no longer confined to just fossil fuel projects that may turn unprofitable as pollution regulations tighten globally. Startups focusing on battery technology [4] (*or similar technology that will require new manufacturing processes that mandate capacity building*) for energy storage, risk being out dated with superior low cost energy storage alternatives packaged with an ethical and sustainable message coming to force. According to a sustainability report published by PwC, failure to consider ESG risks systematically allows buyers to impose discounts on the purchase price. If the vendor can't provide reassurance and evidence that it has addressed potential ESG problems, it will be expected to factor the uncertainty into the price[5].

2. Role for ESG data vendors

As more investors understand how ESG data could help them understand risk and opportunities in the due diligence phase (part of pre-deal stage of a deal lifecycle) ESG data providers in the wider ecosystem play a critical role in the investment process by gathering and assessing information about companies' ESG practices and scoring those companies accordingly. There are more than 125 ESG data providers. These include well-known providers with global coverage such as Bloomberg, FTSE, MSCI, Sustainalytics, Thomson Reuters, and Vigeo EIRIS, as well as specialized data providers such as S&P Trucost (carbon and 'brown revenue' data), GRESB (sustainability performance in real estate), Akadia (emissions data with breakdowns of Scope 1, 2 and 3 based on GHG protocol) and ISS (corporate governance, climate, and responsible investing solutions).

While many companies start to engage stakeholders, customers are also taking a keen interest in ESG disclosure. Carbon Disclosure Project (CDP) is setting an example by helping companies disclose their carbon footprints. These are promising litmus tests for environmental issues, however when pertaining to social issues, it is not simple to measure it with accuracy. For example, it is not realistic to expect a questionnaire to reveal the satisfaction level of employees. In response Asset Management companies such as PanAgora use machine learning to capture how a company treats their employees[6].

Despite the valuable contributions these data providers have made in advancing ESG investing, providing a wide range of ESG data (i.e. some provide data which are GRI/SASB/SDGS compliant and some combine ESG with stock market), there are still some gaps which are likely to constrain the speed of transitioning to sustainable alternatives.

3. Disclosure of non-financial data

As the majority of ESG data disclosure is self-reported, it is not easy to tell how much this data reflects reality. Transparency can help to improve communication among various relevant stakeholders, including their workers, the community, customers, and the environment. Though it can be challenging to set the boundary of disclosure for many companies, transparency is not only convincing to customers but can act as an invitation for collaboration. As reported by Ethical Corporate, Carbon Disclosure Project (CDP) has seen a 24% increase in the number of companies asking their suppliers for environmental transparency in the past year[7].

4. Lack of participation from SMEs

SMEs form a large proportion of companies and employers worldwide, accounting for approximately 90% of businesses. According to the World Bank, SMEs provide at least 45% of the jobs and 33% of the GDP in emerging economies alone[8]. They therefore play a crucial role in the sustainability transition, while also facing significant constraints, including lack of access to finance. SMEs are, therefore, unlikely to feel incentivised towards making a sustainable transition more urgently, leading to limited participation in ESG practices. Sustainability is not yet deeply entrenched in the majority of these SMEs. In 2015, SMEs accounted for just 10% of the total number of sustainability reports captured in the GRI Sustainability Disclosure Database, with 90% coming from large and multinational organizations, despite the fact that sustainability reporting is just as important for small and medium size organisations[9].

5. Why should startups care?

In the world of startups, ESG engagement is often deferred to later stages as they allocated their limited resources. However, it's far easier and more effective to integrate ESG from the beginning. As the role of business in our society has been redefined, savvy entrepreneurs and innovators are increasingly considering ESG issues as essential drivers for success in today's markets. Therefore, it is vital to embed sustainability in the early stages of building the business model. Many startups are recognising this and we are seeing an increased number of social startups.

While ESG has proven to be important for startups, it has never attracted as much attention as it does now. The recent events (i.e. Black Lives Matters and COVID-19 pandemic) have fostered this transition. The influence has contributed to more inclusive, sustainable, and equitable business practices in the private sectors. In a survey by 500 Startups [10] of startup founders, the majority of respondents (57%) were pre-seed startups with fewer than 5 employees. According to the survey, 90% of startup founders think implementing ESG policies and practices is important due to the recent events, while nearly 70% of the respondents regarded recent events as a trigger to get involved with ESG issues. These figures show that there are more founders considering embedding ESG policies in their wider business policy. When the respondents were asked which aspects of ESG they have implemented, nearly half of them responded they had adopted a policy concerning social issues. Around a third had policies implemented to tackle environmental issues, while those covering governance issues only accounted for less than 15%. It is understandable that the startups in the pre-seed stage might not have elaborate structured policies to commit to governance, but this remains a core subject that requires a robust and well thought out plan that businesses should incorporate early on.

One of the main advantages of ESG engagement for startups is attracting investors, particularly younger investors. According to a Enterprise Singapore's study, investments in the urban solutions and sustainability domain surged 56% [11] year on year, which can be attributed to increasing attention on cleantech and sustainability.

Another benefit is that having a strong ESG focus may help a start-up to attract top talent. Nearly 40% of millennials have chosen a job because of an organisation's commitment to sustainability. Less than a quarter of Gen X respondents and only 17% of Baby Boomers said the same [12].

6. Sustainability Reporting Framework

Companies commonly use various sustainability reporting frameworks and standards; companies recognize that different frameworks and standards serve different purposes and require multiple approaches.

Popular frameworks and standards for measuring, managing and reporting sustainability information are:

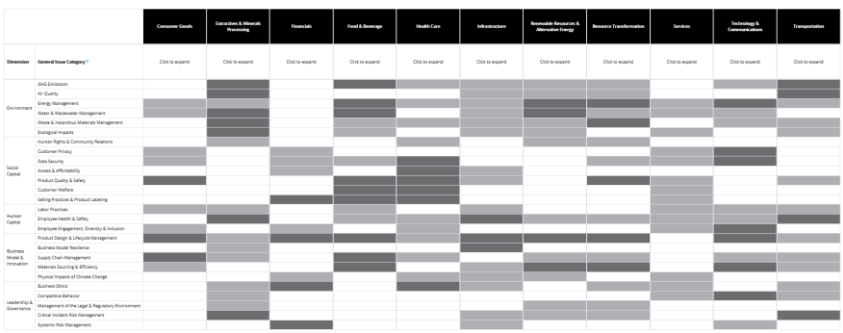
- Sustainability Accounting Standards Board (SASB);
- CDP (formerly Carbon Disclosure Project);
- Climate Disclosure Standards Board (CDSB);
- Global Reporting Initiative (GRI);
- International Integrated Reporting Council (IIRC), and
- Task Force on Climate-related Financial Disclosures (TCFD).

7. Integrating ESG into a start-up

- Incorporating Measurement
- Incorporating Reporting
- Incorporating Verification

7.1 Measurement

The first step for any start-up is to identify what needs measuring based on the industry or type of market a start-up operates. The Sustainable Accounting Standards Board ("SASB") mentioned in the above list of frameworks can be used to identify relevant sustainability topics.



The SASB Materiality Map [13], (© 2020. Reprinted with permission from The SASB Foundation. All rights reserved.) is an interactive online tool that can be used to identify ESG factors for a specific or industry and is a useful resource for startups. Once identified, some of the topics covered could be extracted from internal systems such as management systems, human resource systems, or customer relationship tools. Consulting with wider subject matter experts, auditors or advisory partners for insight on emerging and best practices would assist in identifying internal sources.

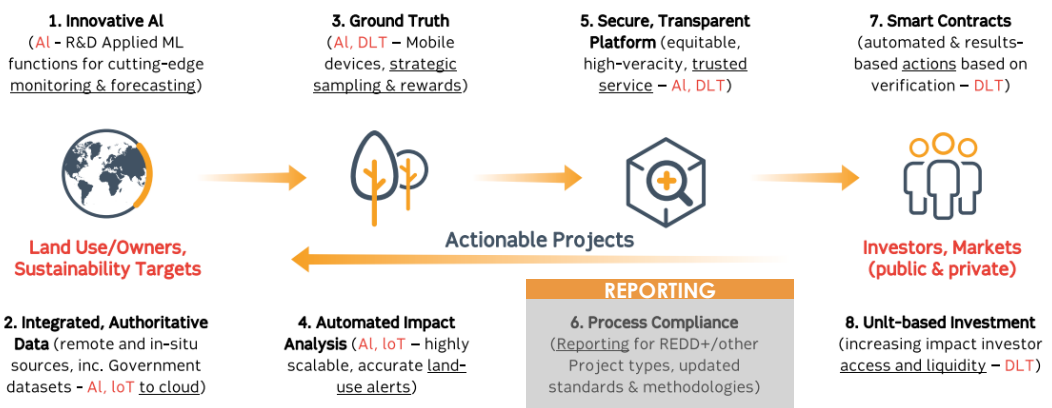
7.2 Reporting

A first step in reporting should be to identify any mandatory requirements that govern corporate reporting on sustainability issues and to assess how prescriptive the requirements are in any given jurisdiction. Disclosing information pertaining to sustainability to investors is often voluntary, leaving companies with considerable flexibility in determining the best channel to share this information.

Some of the reporting channels may include, but are not limited to:

- Mainstream financial reporting, such as an annual report to shareholders or regulatory filing;
- Sustainability sections on the corporate website or dedicated reports; or
- Earnings or investor presentations.

The below figure is a REDD-Chain Project [14], a land-use management initiative to improve MRV accuracy using AI, Blockchain and IoT Sensors across the value chain.



7.3 Verification

As more consumers show a preference for products that have been certified as sustainable, independent verification plays a key role to maintain trust in the marketplace. This includes products with certification "seals" (such as the EPA Energy Star program or its equivalent EEP Energy Star in India focusing on energy efficiency) but also those with third-party certifications such as B Corp that focuses on overall impact and not just a specific product or service. These third-party verification providers in the market with auditing expertise can assure the ESG data being reported is accurate and provide a high level of credibility, while helping startups identify and target key improvement areas.

8. Tools for self-assessment and improvement

B Lab is a non-profit that serves a global movement of people using business as a force for good. It was honoured as a 2020 world's most innovative company, landing at #5 in the not-for-profit sector list by Fast Company[15].

The B Corp Certification for startups based in India costs less than $500 [16] and $1000 for the U.S., Canada and other countries (i.e. annual sales less than $150,000). It also provides B Impact Assessment (BIA), an online platform to measure a company's impact on its workers, community, environment, and customers for free. The full impact self-assessment can take up to three hours and provides a benchmark against similar organisations along with a customised improvement plan.

9. Alignment with Sustainable Development Goals

SDG Action Manager developed by B lab is a complimentary tool, in collaboration with UN Global Compact, to enable businesses to take action on the SDGs through 2030 [17].

The answers from the BIA tool are automatically transferred and can help startups in:

1. Finding their starting point based on the type of start-up;
2. Understanding and sharing their impact via risk analysis and clarity;
3. Setting goals and tracking improvements via a visual dashboard;
4. Collaborating across the organisation with SMEs and tracking real-time progress;
5. Learning via assessment questions, benchmarks and improvement guide and
6. Joining a global community of trailblazing companies focusing on sustainability.

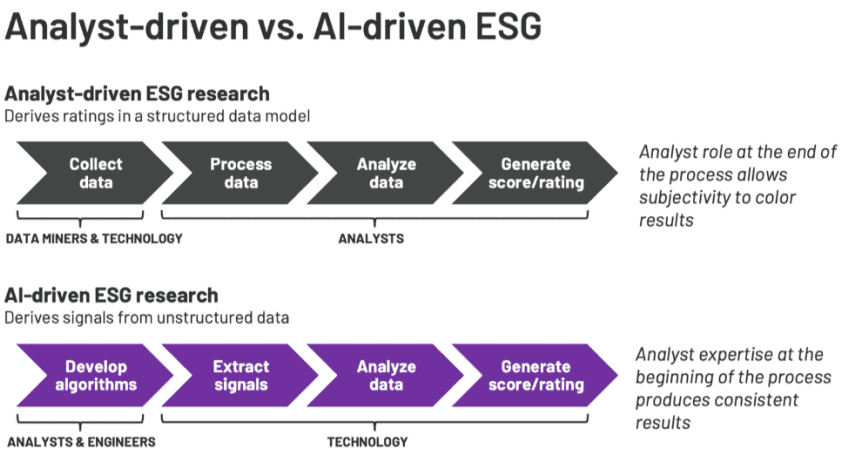
As consumers are beginning to demand sustainable products and services, companies are transitioning towards more circular business models to gain a competitive advantage. Today, incumbents with a strong foot hold in the market are embracing collaboration with startups and innovators, to adopt novel solutions and achieve cleaner and more sustainable operations and products. Such partnerships, among others, are one of the promising ways to foster the future of industries, rapidly scale-up efforts, and highlight the need for SDG alignment.

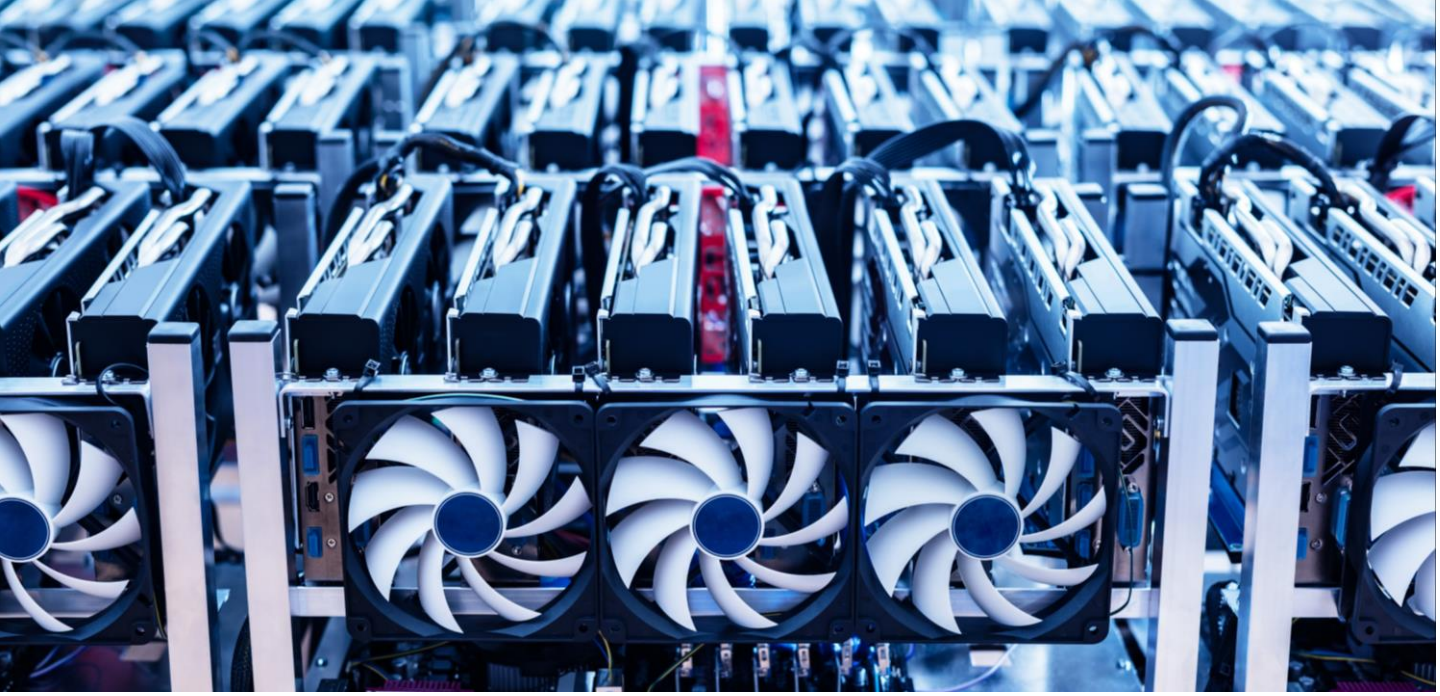
Some of the startups in Europe focusing on SDG goal number 12 for example as reported by Valuer [18] by applying natural language processing (deep tech) on its platform of 250,000 include Atmonia (zero carbon ammonia), Refurbed (electronic waste recycling), Asekomo (feed and fertilisers from organic waste), Soli Grid (solar powered irrigation system), and Norsepower Oy (auxiliary wind propulsion system).

10. Deep Tech : Blockchain and AI

Deep tech is an umbrella term which covers technologies involving artificial intelligence, robotics, blockchain, advanced materials science, photonics and electronics, biotech and quantum computing. Deep tech startups are fast gaining recognition as the answer to some of the world's most complex problems.

ESG data is hard to exploit due to its volume and distribution. The role of artificial intelligence within the ESG ecosystem is to help stakeholders such as analysts, investment managers and asset managers go through vast reams of ESG data in a sector where information is often presented in incompatible ways, due to the lack of reporting regulations or diverse channels and format used for disclosure. To exploit the ESG data available, AI techniques such as natural language processing (NLP) and web scraping [19] (looking for keywords in patents, company description, social media satellite images and press releases etc) are used by many organisations. Thus they play a novel role within the measuring and reporting stages of disclosure.

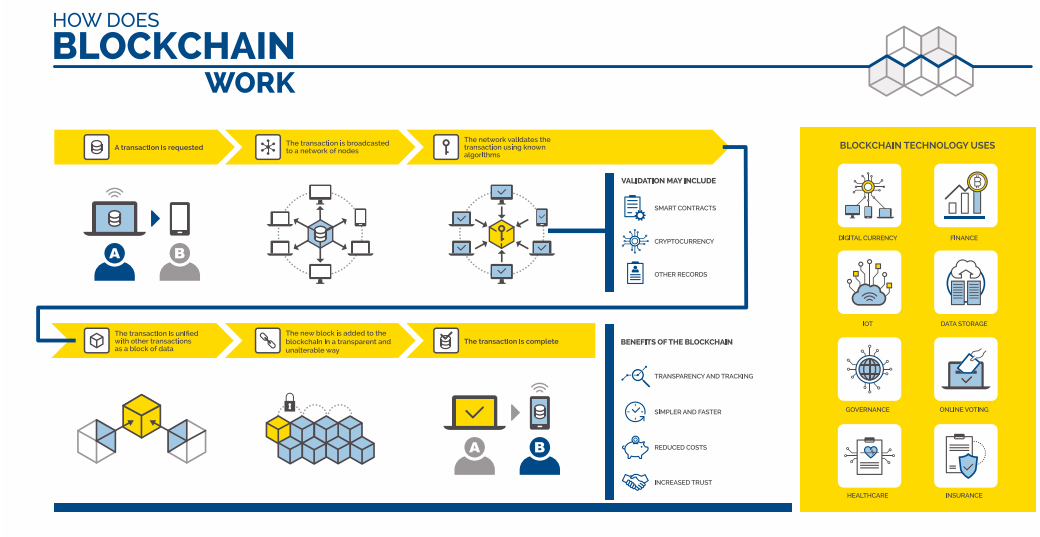




Blockchain technology is a mutual distributed digital ledger – a blockchain is a database that is shared across a network of computers meaning that information is decentralized. Once a record becomes a 'block', it is very difficult to change because it becomes attached as part of a series of chains. To ensure all the copies of the database are the same, the network makes constant checks.

The key purpose of the technology is to produce a data file (in our case, it would be to capture ESG related data signatures) which is guaranteed to be tamper proof, and which can be shared between users (computers store a copy of this globally in a decentralized manner). All users can read the file and check its consistency, and one or more valid users will be able to update the file (by adding new data to the chain).

Blockchain features such as smart contracts (self-executing programs) and digital tokens can play a key role in chain-of-custody (for track and trace), guarantee-of-origin (for renewable energy and green fuels), self-sovereign identity (managing personal data) and decentralized identifiers (for sensors capturing environmental data).



At Infoeaze, we aim to be the first to deliver ESG data based on the SASB Materiality Framework™ that is machine readable using W3C (VC) verifiable credentials 1.0 format. This is to enable instant verification of ESG data using our Consent Platform that is powered by Verification-as-a-Utility Business Model

– ***Sandeep Krishnappa, Chief Product Officer***

Below is a list of possible opportunities around sustainable impact analysis in the envisioned Consent Marketplace using deep tech (AI and Blockchain):

Environmental Issues

- Climate Change: This would include issuing verified credentials around carbon emissions and tracking carbon footprints of consumer products.
- Natural Resources: Reducing water spillage by benchmarking claims shared by utility providers, encouraging biodiversity, land usage and raw material usage via satellite imagery verification.
- Pollution and Waste: Verification of the industrial footprint around toxic emission of waste, electronic waste and recycling packaging materials.
- Environmental Opportunity: Managing claims around Green Buildings that use, for example, decentralized rainwater harvesting. Verifying guarantee-of-origin claims for renewable energy that covers not only solar, wind and hydropower, but also emerging green hydrogen, green ammonia and green ethanol exports.

Social Issues

- Human Capital: Verifying claims on upskilling and talent development of local communities, health and safety records, industrial engineering work permits on critical assets, i.e. project- or contract-based credentials.
- Stakeholder Opposition: Verification of controversial sourcing within the supply chain for industrial manufacturing.
- Product Liability: This includes chemical safety (GMO tracking), privacy and data security standards (Self-Sovereign Identity) and product safety and quality (sustainable aviation fuel).
- Social Opportunities: Verifying secure communication (content delivery networks or open-source satellite networks) and nutrition and health (in facility management services).

Governance Issues

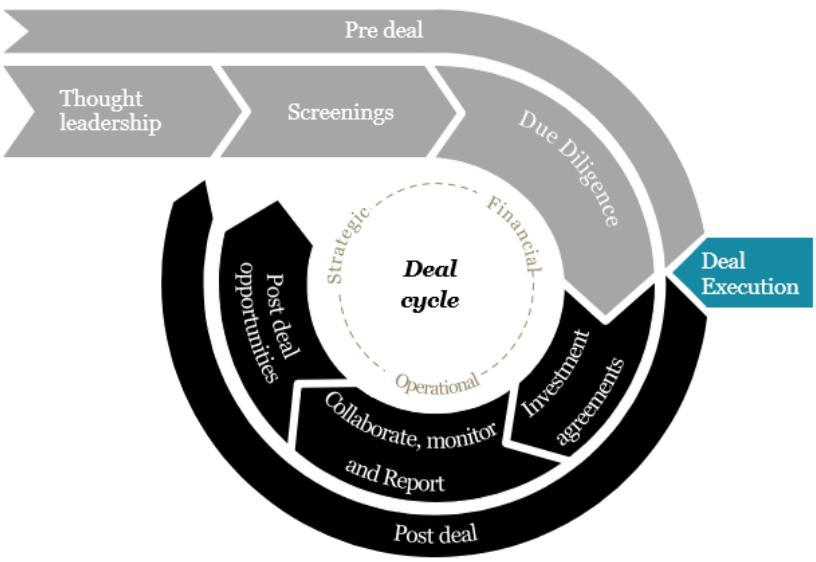
- Corporate Governance: Verifying corporate securities (due to qualities around liquidity and transparency), voting in corporate elections (our team has experience in biometric voting), ownership of stake (decentralised autonomous organisation) and know your customer or know your partners.
- Corporate Behaviour: Real-time auditing (carbon emissions), related party transactions in disclosure rules (suspicious asset transfers) and earning management (accounting manipulation).

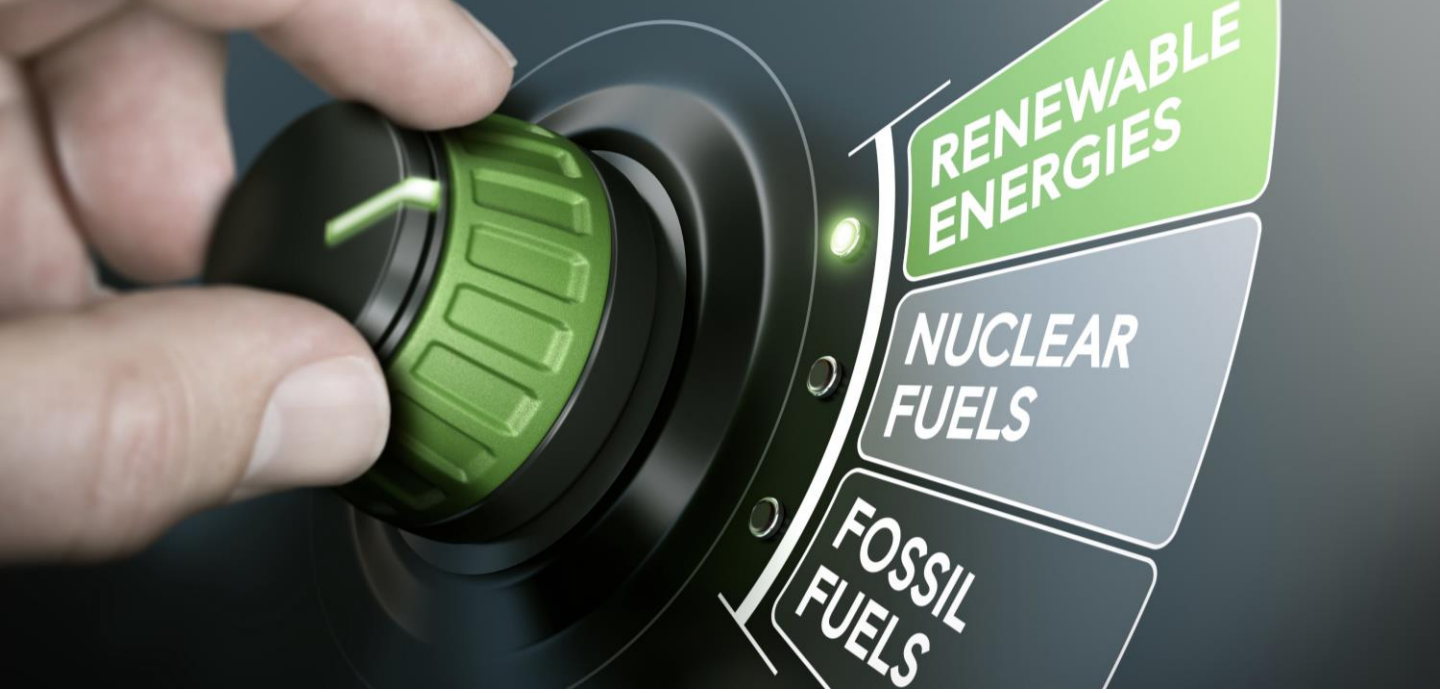
11. Consent Platform: Verification-as-a-Utility for ESG data

The Infoeaze Consent platform at its initial launch would support startups by incorporating pre-built templates for capturing SASB compliant ESG data around social elements. These measurement templates would start by focusing on cross-industry social factors such as - staff turnover, training & qualifications, maturity of workforce around tenure, absenteeism etc and provide a consent based reporting implementation framework to embed the disclosure data via any chosen channel.

The verification of ESG data would be available OnDemand as a utility for any stakeholder interested in the ESG data during a given deal lifecycle [20] of a startup:

1. for the purpose of due diligence in the pre-deal stage and
2. to track progress of the action plan as part of investment agreements in post-deal stage

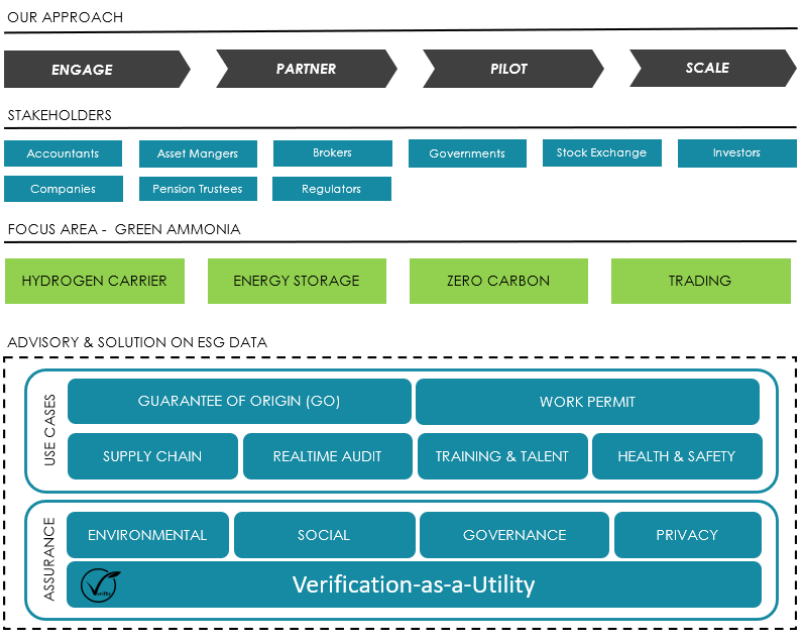


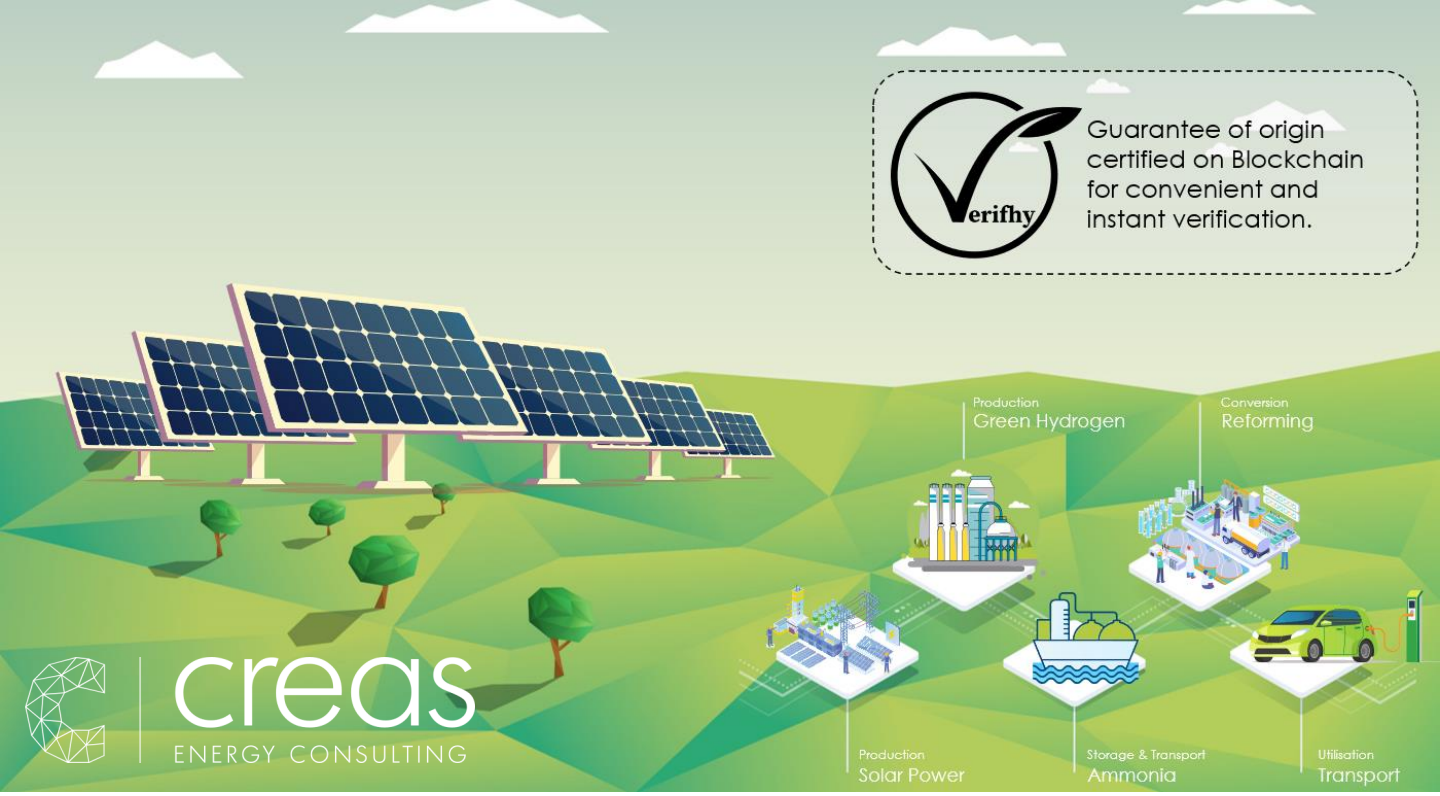


12. An Energy Transition perspective

The energy industry, being one of the key sectors that emit significant GHGs, is under pressure to adopt a more sustainable approach. Henceforth, ESG will be integral in transforming the energy industry's risk landscape. Additionally, the recent oil price war and reduction in demand due to the COVID-19 pandemic will have a fundamental impact on future energy industry risk management strategies. Today's energy businesses must commit to incorporating ESG standards and climate change into their risk mitigation strategies to ensure a sustainable future.

An example of the Infoeaze Consent platform as a foundation for Verifhy product, to support digital measurement, reporting and verification (Digital - MRV) activity by publishing ESG data in energy transition focusing on green ammonia is listed below.





01 / **FAST**

Quick verification of any certificate in less than a minute.

02 / **SECURE**

Cryptographically secured on Blockchain that is tamper-proof.

03 / **EASY**

Just use QR code to verify any certificate using a mobile device.

MEET VERIFHY

Training

Issue training certificates that are self verifiable on a public chain that is publicly accessible by anyone.

Equipments

Issue safety certificates which track safety critical equipment for inspection, testing and asset life cycle management.

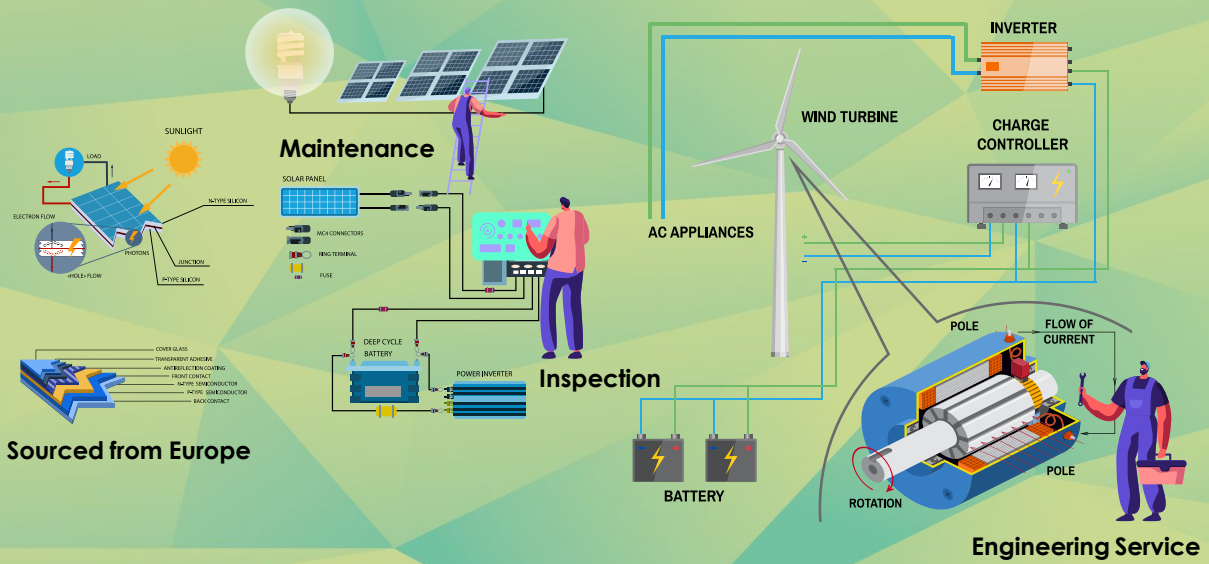
Guarantee of Origin

Issue GO certificates that can be tracked globally and can perform real-time reconciliation and emission reporting.

Work permits, Safety certification, Training and Asset Management using Blockchain for convenient and instant verification.

- Plant and infrastructure maintenance where multiple parties are involved
- Establishing provenance of equipment and services across the asset supply chain
- Secure recording of safety-related transactions, such as permits and incidents
- Management of damage and warranty-related claims
- Managing the life-cycle of assets with significant trust and security requirements

Verifhy

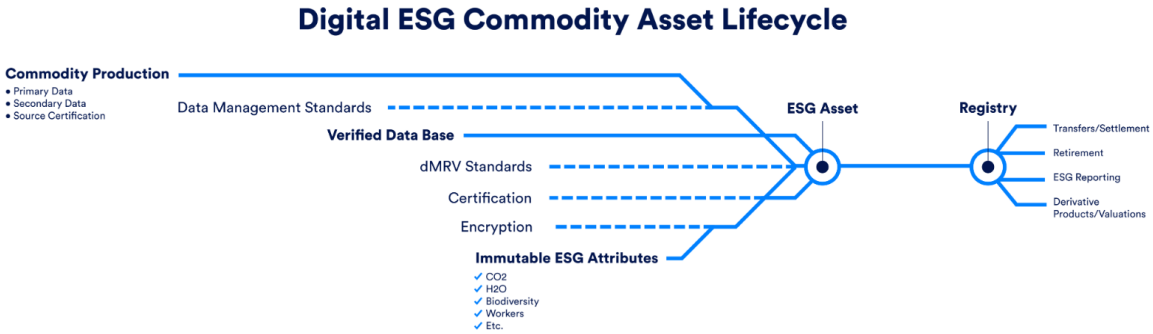


13. Digital ESG Commodities (d-ESGc)

With the announcement of the formation of a Sustainability working group [21] by **InterWorkAlliance,** there will soon be an efficient and standardised methods for exchanging certificates and other digital assets tied to reducing green house gas emissions, such as tokenized accounting of carbon emissions, accounting, and credits. These standards will serve as foundations for both voluntary and regulated carbon markets using blockchain to create an auditable ecosystem.

Xpansiv CBL Holding Group have published **Principles for Building a Common Data Governance Framework for Market & Environmental Integrity** [21], part of a series of collaborative governance and market-design initiatives led by XCHG to foster a common digital ecosystem for trusted, transparent markets in energy, environmental, and climate-related data.

The below figure [21] illustrates the basic components and general stages in the lifecycle of a d-ESGc representing the environmental attributes associated with production of a hypothetical raw material commodity.



13. Conclusion

We recognize that focusing on sustainability, energy transition and deep tech may require a new way of thinking. The goals are complex and interconnected and their success likely depends on new partnerships between businesses, governments and civil society. However, useful tools are emerging for companies to understand better how they can contribute to sustainability in a holistic way.

This publication has made a small attempt to raise the awareness of the role ESG data plays in the sustainability agenda. It highlights some of the motivation, vendor landscape, standards, tools available today and new ones in development for release by Infoeaze and CREAS in the future.

At Infoeaze we are optimistic that a sustainability mindset offers a road map for startups and incumbents to engage with their internal and external stakeholders on how to create sustainable strategies that can transform not only their business models, products and services, but also the communities where they operate.

OUR ROOTS

MISSION | VISION | VALUE | MANIFESTO | TEAM

5.1 OUR MISSION, VISION, VALUES

MISSION

Build trust in digital identity and solve important problems.

VISION

To be the world's number one verified credentials wallet to store, share and manage verified credentials.

VALUES

Inclusion, Compassion, Knowledge, Creativity and Nimbleness.

Our Manifesto

1. Right to Issue

Any institution should be able to issue verified credentials for free to help the holders.

2. Own Your Data

Users should be able to own and store data conveniently with no vendor lock-in.

3. Choose Your Opportunity

Users should be able to view what they consent to and not what the advertisers choose.

4. Control Data Privacy

Users should be able to share data on a need-to-know basis without disclosing all of the data.

5. Instant Verification

Users should be able to prove their details instantly and not have to wait for days.

6. Fair Incentive

Users should be able to monetize their personal data in a convenient manner.

Our Core Team

Madan Prasad | Co-founder | Chief Executive Officer

Madan leads the team as Chief Executive Officer with extensive process knowledge in the background verification business. He has worked at FirstAdvantage, HireRight, Aegis and America Online. He is also a six sigma black belt qualified professional for process improvement.

Santosh Golechha | Co-founder | Chief Technology Officer

Santosh leads the team as Chief Technology Officer with 20 years experience in Software Development and Architecture. He has worked across California, Boston, Atlanta and Houston. He is currently based in Vizag and manages three associates within our development powerhouse.

Sandeep Krishnappa | Co-founder | Chief Product Officer

Sandeep leads the team as Chief Product Officer with 14 years of cross industry background in Knowledge Transfer and Digital Transformation. His past experience includes working at Northern Railways, Unilever R&D, British Gas, PricewaterhouseCoopers, KBC Advanced Technologies and, most recently, at Kellogg Brown & Root.

Lakshmi Kumari | Background Verification Lead

Lakshmi has over 11 years experience working in background verification process and knowledge process outsourcing. She currently leads our internal BGV process team. and customer experience journey. Her experience also includes casualty and liability insurance at Ajg Gallagher and, people and process management at First Advantage and First American Title.

Abhishek Venkatesha | Business Development Lead

Abhishek was one of our first partners to join Infoeaze and leads all our business development activities and external engagement. He worked at KPMG and Dunzo before joining Infoeaze to take on the challenging leadership role of developing our business globally. He has BA Honours in Business Management from Sheffield Hallam University.

Atif Ahmad | Investment Lead

Atif has over 12 years of experience as a project/program management and business consultant with extensive experience spanning multiple industries. Atif is a Chartered Engineer, ITIL 4 certified, a PRINCE2 Practitioner and has an MBA from Alliance Manchester Business School. His past work experience includes Cisco, Siemens, DNV-GL and Invensys (A Schenider Company).

Our Advisors

Alina Zhou | Finance

Alina has over 10 years' experience working across the United Kingdom, China and Singapore. She is currently Head of Finance (ASEAN) at Alibaba group. She is CIMA/CGMA qualified and has extensive experiences across various finance functions, specialising in financial planning and analysis and continuous improvement to process and risk management.

Arianna Trozze | Crypto

Arianna has over 11 years' experience working as a consultant, product manager, analyst and researcher. She is currently a PhD Candidate at the EPSRC Centre for Doctoral Training in Cybersecurity (University College London). Her most recent work was for the law firm Kobre & Kim. She has an MSc from the University of Oxford and a BA from Franklin University Switzerland.

Asfiaa Husaini | Talent

Asfia has 12 years experience working in the information technology and services industry. She started her career at Goldman Sachs and then worked for Tesco, NetApp and spent the last 9 years at Dell EMC. She is skilled in Talent Management, Recruiting, and Technical Recruiting. She has a Master's in Human Resources Management.

Maya Bhatti | Marketing

Maya has over 20 years' experience and has worked for large multi-national organisations as well as SMEs. More recently, Maya worked at PricewaterhouseCoopers for 14 years, where she was the Global Marketing Campaign Leader for Artificial Intelligence and Cyber Security. Prior to this she was Global Financial Services and Asset Wealth Management Marketing Leader.

Bhanu Chandran | Learning & Development

Bhanu has over 28 years' experience in human resources with a successful history of working in the Financial Services and IT industry. She is currently Vice President of HR & Contacts at Amazech. In the past, she headed talent development at Goldman Sachs in India and served as Vice President – L&D for Asia Pacific at Northern Trust.

Our Advisors

Abdulla Mahmood | Brand

Abdulla has over 18 years of experience in Marketing and Business Development. He is currently a Director at Al Ahli Holding Group, Dubai. He focuses on strategic brand alliances with regional and international government bodies, global talents, celebrities and Hollywood Studios such as Netflix, Marvel, Disney, Fox and Sony. He was honoured as Asia's Most Influential CMO, Asia's Marketing Professional and Asia's Corporate Communication Professional.

Kevin Clarke | Services

Kevin has over 35 years experience in Energy Consulting. He is currently CEO of CREAS and focuses on strategic and technical advisory to venture capital, private equity funds and banks investing in sustainable technology for the energy-to-chemicals. He has held senior leadership positions at Kellogg Brown & Root, Permasense (An Emerson Company), KBC Advanced Technologies (A Yokogawa Company) and others.

Jyothish Nair | Design

Jyothish has over 20+ years experience in the creative sector. He is currently Vice President and Associate Partner at McKinsey & Company, London. His past experience includes reshaping the future of design systems across digital experiences, physical products and service touch points as a Group Creative Director at Barclays, Creative Director at Native Design and associate creative director for Publicis Sapient.

Longzhu Shen | Artificial Intelligence

Shen is a scientific consultant on machine learning, mathematical modelling, quantum chemistry and GIS computations. He has post doc research experience at University of Cambridge and Yale University. He also holds a PhD in Chemistry from Carnegie Mellon University, M.S. in Computational Biology from Beijing University of Technology and B.S. in Biochemistry from Northwest University.

Varun Sethi | Legal

Varun Sethi is a lawyer who has been a start-up evangelist and consultant for past 7 years, consulting for more than 120 startups in India and abroad, including more than 95 funded by Indian and U.S. VCs. His efforts have been covered by the Economic Times, Bloomberg TV, Money Control, Forbes India, Crypto Currency and other media outlets.

FURTHER READING

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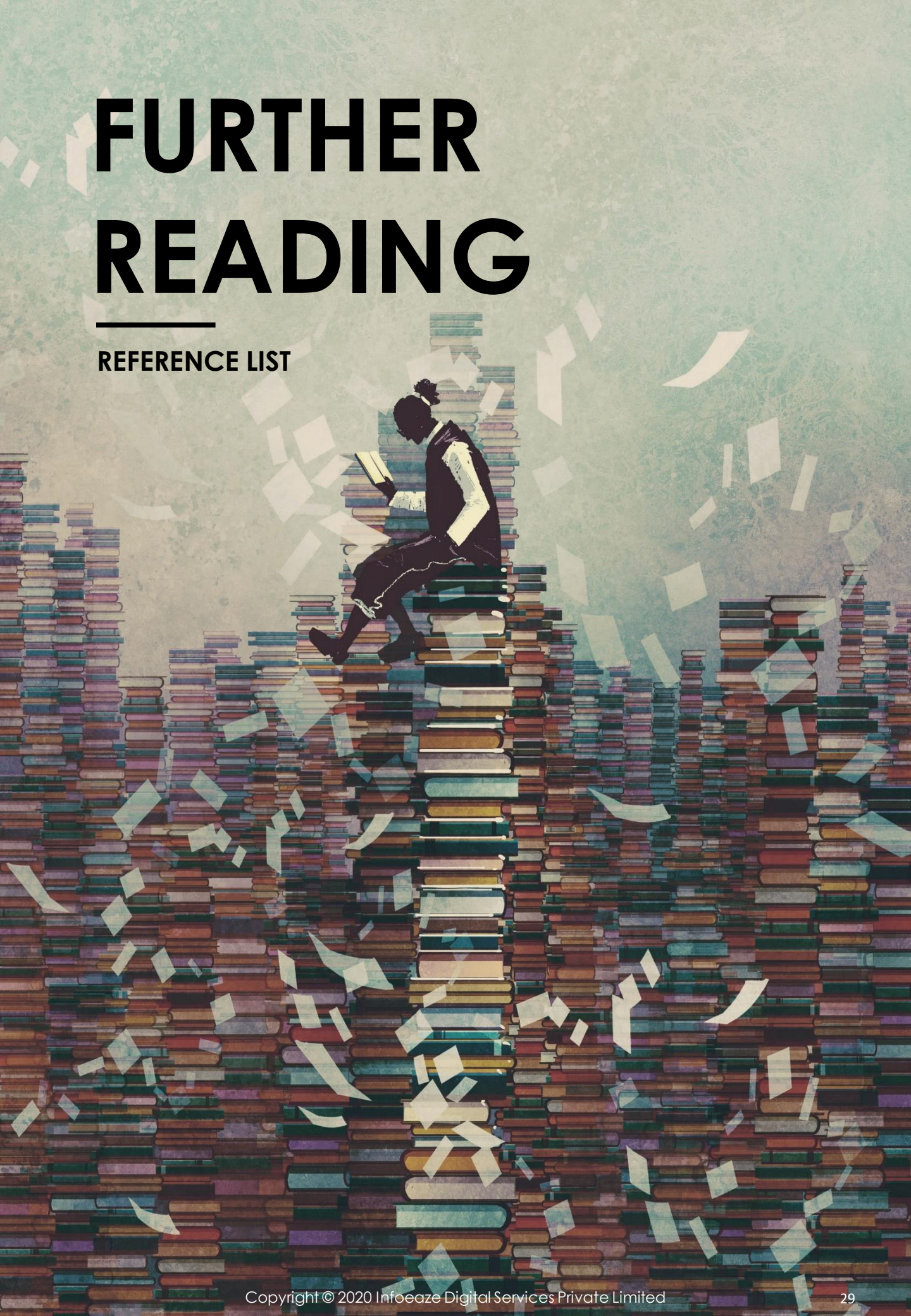

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Glossary

Artificial intelligence (AI) - sometimes called machine intelligence, is intelligence demonstrated by machines, unlike the natural intelligence displayed by humans and animals.

Blockchain - a growing list of records, called blocks, that are linked using cryptography. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data (generally represented as a Merkle tree)

CDP (Carbon Disclosure Project) - is the largest climate change focused data collection and assessment programme. Each year the programme requests Information on greenhouse gas emissions, energy use and the risks and opportunities from climate change from the world's largest companies.

Decentralized identifiers (DIDs) - are a new type of identifier that enables verifiable, decentralized digital identity. A DID identifies any subject (e.g., a person, organization, thing, data model, abstract entity, etc.) that the controller of the DID decides that it identifies. In contrast to typical, federated identifiers, DIDs have been designed so that they may be decoupled from centralized registries, identity providers, and certificate authorities.

Environmental, Social and Governance (ESG) - refers to the three central factors in measuring the sustainability and societal impact of an investment in a company or business.

Guarantee-of-Origin (GO) - is a tracking instrument defined in article 15 of the European Directive 2009/28/EC. A GO labels electricity from renewable sources to provide information to electricity customers on the source of their energy. Guarantees of origin are the only precisely defined instruments evidencing the origin of electricity generated from renewable energy sources.

A greenhouse gas (GHG) - is a gas that absorbs and emits radiant energy within the thermal infrared range. Greenhouse gases cause the greenhouse effect on planets.

GHG protocol - The Greenhouse Gas Protocol (GHG Protocol) is the most widely used international accounting tool for government and business leaders to understand, quantify, and manage greenhouse gas emissions.

The Global Reporting Initiative (GRI) - is an international not-for-profit organisation, with a network-based structure. To enable all companies and organisations to report their economic, environmental, social and governance performance, GRI produces free Sustainability Reporting Guidelines.

MRV - Measuring, Reporting and Verification

Natural Language Processing (NLP) - is a subfield of linguistics, computer science, information engineering, and artificial intelligence concerned with the interactions between computers and human (natural) languages, in particular how to program computers to process and analyze large amounts of natural language data.

Self-sovereign Identity (SSI) - With self-sovereign identity (SSI) the individual identity holders fully create and control their credentials, without being forced to request permission of an intermediary or centralised authority and gives control over how their personal data is shared and used. The user has a means of generating and controlling unique identifiers as well as some facility to store identity data.

SMEs – Small and medium-sized enterprises

Stranded Assets – are assets that have suffered from unanticipated or premature write-downs, devaluations or conversion to liabilities. Stranded assets can be caused by a variety of factors and are a phenomenon inherent in the 'creative destruction' of economic growth, transformation and innovation, as such they pose risks to individuals and firms and may have systemic implications.

Glossary

The Sustainability Accounting Standards Board (SASB) - is an independent non-profit, whose mission is to develop and disseminate sustainability accounting standards that help public corporations disclose material, decision-useful information to investors. That mission is accomplished through a rigorous process that includes evidence-based research and broad, balanced stakeholder participation.

The Sustainable Development Goals (SDGs) are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate change, environmental degradation, peace and justice. The 17 Goals are all interconnected, and in order to leave no one behind, it is important that we achieve them all by 2030.

Verifiable Credentials (VC) - are the electronic equivalent of the physical credentials that we all possess today, such as: plastic cards, passports, driving licences, qualifications and awards, etc. The data model for verifiable credentials is a World Wide Web Consortium Recommendation, "Verifiable Credentials Data Model 1.0 - Expressing verifiable information on the Web" published

World Wide Web Consortium (W3C) - is the main international standards organization for the World Wide Web. Founded in 1994 and currently led by Tim Berners-Lee, the consortium is made up of member organizations that maintain full-time staff working together in the development of standards for the World Wide Web. As of 21 October 2019, W3C had 443 members.

Disclaimer

The primary focus of this publication is for the readers to analyse the ESG data landscape and the effective digital solutions suggested for measuring, reporting and verification of data.

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