THE DIGITAL ECONOMIST

Healing





A



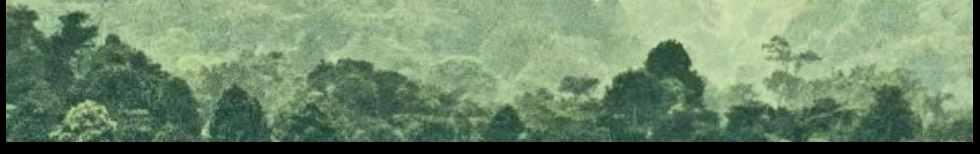




Broken







World

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Foreword



Navroop Sahdev
Founder & CEO
The Digital Economist

This book has been more than two years in the making. It is the result of dialogue, research, and lived practice that extends far beyond academic inquiry. Over this period, the ideas gathered here have been tested in convenings, debated in roundtables, and reflected upon in the lived realities of our global community. What you will find in these pages is not abstract theory but thought made real—through practice, through struggle, and through the determination to imagine differently.

Healing a Broken World is both a title and a call to action. It acknowledges the fractures we live with—environmental, social, and economic—and it asks us to imagine what it would take to repair them. Not with incremental change, not with the tools that created the crisis in the first place, but with new ways of thinking, designing, and living together.

At The Digital Economist, our work has always been animated by this conviction: that the future will be written by those willing to challenge the assumptions of the present. Over the past years, we have convened leaders on the world's most influential stages —at Davos, at Climate Week in New York, at the spring and fall meetings of the World Bank and IMF. We have published research that pushes the boundaries of economic thought, built frameworks that reimagine governance and sustainability, and created ventures that translate ideas into action. Yet beyond the reports and the convenings, what has always mattered most is cultivating a community of people who believe that a different world is possible—and who are willing to work for it.

This book is an expression of that community. Its chapters traverse histories and horizons, inviting us into thought experiments that unsettle business as usual and point toward new possibilities. They remind us that systemic change begins with imagination. They urge us to consider that the path forward lies not in extraction and accumulation, but in regeneration, reciprocity, and care.

We begin in **Chapter 1, In Pursuit of the Hidden Economy**, with the recognition that vast sums—trillions of dollars—remain concealed in opaque financial structures, siphoned away by corruption, tax abuse, and illicit flows. It is impossible to address global crises without first acknowledging this hidden economy and asking what it would mean to reclaim those resources for human and planetary well-being.

Chapter 2, Capital for the Common Good, takes the next step. If resources are being lost to secrecy and extraction, how should capital be redirected? Here, the idea of Sustainable Capital Goals emerges: a bold proposal to realign finance with the needs of the Global South, climate resilience, and human flourishing, through new crossborder structures of accountability and flow.

But solutions cannot be fully embraced without reckoning with the persistence of old patterns. **Chapter 3, Beyond Neocolonialism**, confronts the enduring power asymmetries between Global North and South, showing how extractive corporate power and skewed trade relations carry colonial logics into the present. It forces us to ask whether development has truly broken from its imperial inheritance, or whether we remain bound by new forms of dependency and inequity.

From there, the book reaches back further in time. **Chapter 4, Wisdom of the Kouroukan Fouga for the Modern World**, brings forward the 13th-century Manden Charter of the Mali Empire, a constitution that held together a vast trading network for centuries. Its principles of equity, stewardship, and community remind us that answers to modern crises may be found not in novelty alone but in wisdom that has withstood the tests of history.

Chapter 5, Corporate ESG Needs a Jolt to Its System, returns us to the present. It critiques the inadequacies of today's ESG frameworks, showing how they risk becoming a checkbox exercise that obscures rather than advances true sustainability. What is offered instead is the *Sustainable Human Empowerment (SHE)* model—an index and framework that places people, justice, and regeneration at the center of economic measurement.

Finally, **Chapter 6, Trust in a Broken World**, turns to climate finance, carbon credits, and blockchain. At its core is the question of trust: How do we ensure that markets designed to combat climate change are credible, transparent, and accountable? Here, technological systems meet human systems, and the focus shifts to rebuilding trust as the foundation of any meaningful climate solution.

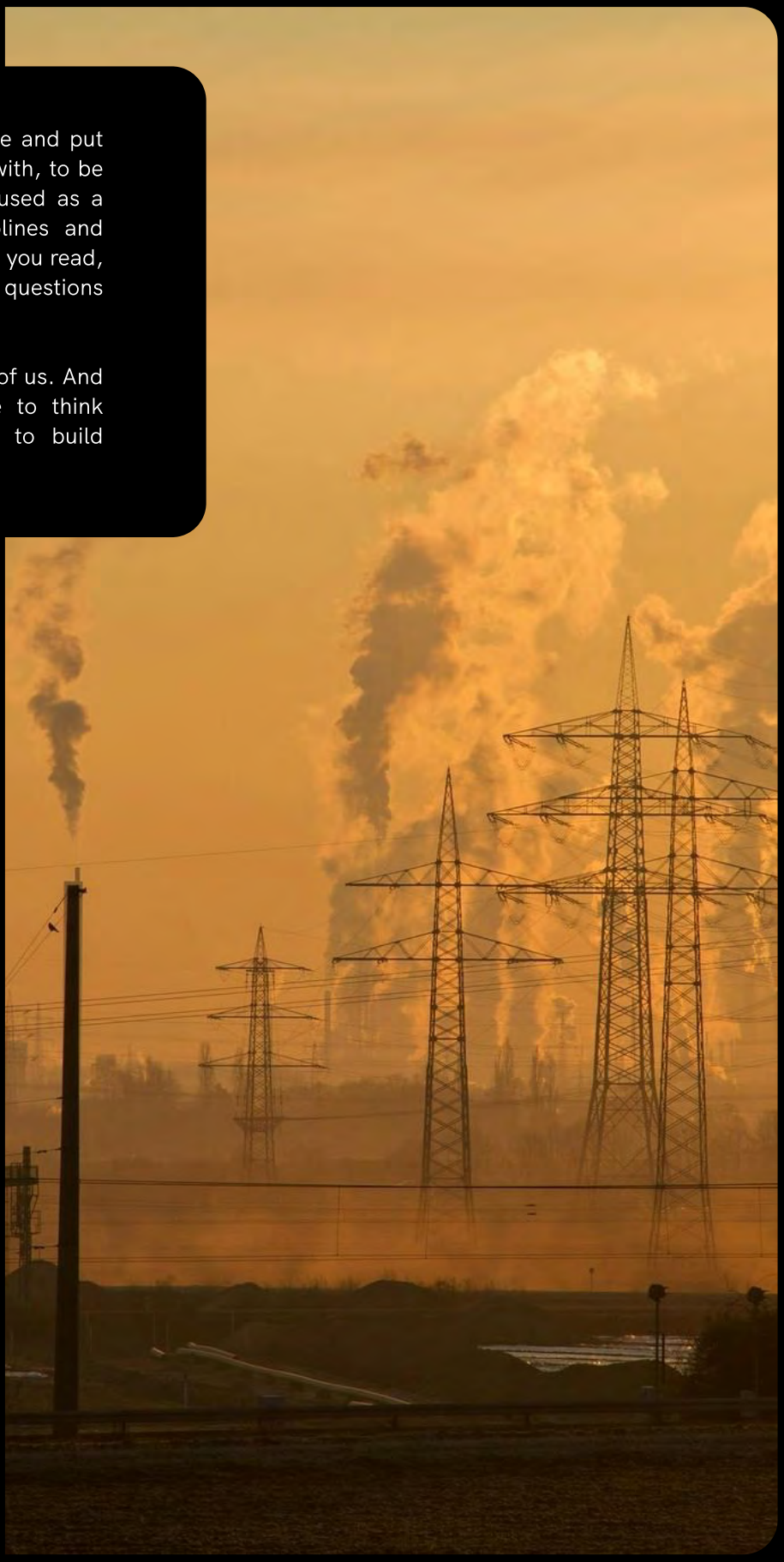
For me, the urgency of this work is personal. I have spent years in conversation with economists, technologists, policymakers, and entrepreneurs across the globe. Again and again, the same truth emerges: we cannot heal a broken world with the same categories of thought that fractured it. Whether we are grappling with the geopolitics of artificial intelligence, the inequities of global finance, or the planetary limits of resource use, the call is the same. We must learn to think differently if we are to live differently.

This book is not simply about the latest financial instruments, carbon markets, or emerging technologies of 2024 or 2025. Its arc is longer, its horizon broader. It spans ages and generations, drawing from history as much as from innovation. It suggests that our present crises come not only from what is happening now but from the ways we have uprooted ourselves from the wisdom of the past. That is the thread running through these chapters: to heal the present, we must reconnect past and future, memory and imagination, economics and the web of life itself.

Healing a Broken World is an invitation to do just that. To stretch our imagination. To reframe our assumptions. To explore futures where economic growth and planetary health are not in opposition, but in alignment. Futures where justice and equity are not afterthoughts, but design principles.

This is not a book to be read once and put aside. It is a book to be wrestled with, to be brought into conversation, to be used as a spark for dialogue across disciplines and across borders. My hope is that, as you read, you will find yourself provoked into questions and inspired into action.

The work of healing belongs to all of us. And it begins here—with the courage to think differently, and the commitment to build together.



A Note from the Editor



Bruce Armstrong Taylor
Editor and Chair, Digital Infrastructure
Former Chair, Sustainability in Tech
The Digital Economist

What this book is *decidedly not* is an attempt, in its six chapters, to "fix" anything. Rather, it offers a collection of thought experiments, each modeled on the tradition described in the *Stanford Encyclopedia of Philosophy* (December 1996; substantially revised November 2023).

Each chapter takes us on a journey of inquiry into very different themes and topics. Each informal treatise is, in the words of the famed Apple slogan, an invitation to *think different.* That slogan celebrated co-founder Steve Jobs's own approach to design thinking. It was a brilliant shortcut, instantly connecting with those who saw themselves as innovators and creators—or who aspired to be seen as such. The deliberately ungrammatical headline gave Apple a direct emotional resonance with people who believed they could boldly change the world by "thinking different."

There is a profound truth to that sentiment. And it was precisely that which struck me most deeply in working with the authors and contributors of four of these six chapters (two were completed prior to my involvement). In today's world—where environmental degradation and resource depletion are urgent realities—the need for a cultural and economic shift toward circular and regenerative systems has become paramount. None of the themes explored here are abstract for me; each one has surfaced in conversations with peers and colleagues, sparking in me a renewed sense of possibility that continues to grow.

Sometimes it is a reckoning with how certain multinational corporations behave in neo-colonialist ways as they expand into lower- and middle-income economies. Such dynamics provoke us to ask: What could be done differently to bring justice, and to advance economic, environmental, and social equity wherever the Global North's corporate brands expand—particularly in the Global South?

Other times, it is a deep dive into the past. Consider the early 13th-century Kouroukan Fouga of the West African Mali Empire: the world's first constitution to cohesively govern a vast, multi-kingdom trading network. This constitution held the empire together for nearly four centuries, and its cultural influence persists to this day in the Caribbean and the Americas—echoes of a heritage carried through the trans-Atlantic slave trade.

Each chapter, in its own way, invites us to *think different.* We cannot hope to "heal a broken world" with the same modes of thought, the same economic models, environmental practices, social frameworks,

or governance systems that created the fractures in the first place. Change begins only when we stretch our imaginations in new directions—envisioning life as we want it to be for all. By embracing regenerative practices—those that restore, renew, and revitalize our ecosystems—we can create futures where economic vitality supports, rather than undermines, environmental health.

That is the gift inherent in each of these chapters. It has certainly been so for me; I trust you will find the same. And as this work unfolds, it will do so within—and help shape—the future digital economy.

Finally, if the ideas in this book spark questions or inspire you to brainstorm, know that there is always a seat open beside us. Reach out to us at The Digital Economist. We would welcome the chance to carry the conversation further.



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Chapter 1

In Pursuit of the Hidden Economy

Don Griswold, Diana Barrero Zalles, Satya Brata Das, Tom Cardamone, Jwalant Desai, Paul Radu, Shlomit Wagman, Thom Townsend, and Navroop Sahdev



Tech for Transparency™ invites collaboration to unleash the power of digital technology and data science in the global fight against corruption. To expose the hidden economy and advance well-being for all, we must move quickly to actualize the full potential of beneficial ownership transparency, harvest avoided and evaded taxes—and use the proceeds to achieve climate resilience and the United Nations Sustainable Development Goals.

An Invitation

As the confluence of conflict, corruption, and climate catastrophe threatens our common future, the power of data science and digital technology must be harnessed to find the path to equity and sustainability.

The assets that reside in the hidden economy—up to US$ 50 trillion of wealth—have been beyond reach, the evasion facilitated by a skein of legal and illicit schemes, aided and abetted by the opaque web of the Internet and its fully anonymous counterpart, the parallel web termed "Darknet."

In Pursuit of the Hidden Economy is the outcome of an extraordinary working group, bringing together veterans of the anticorruption and transparency movements with seasoned data scientists and gurus of distributed ledgers and other digital solutions.

In this paper, Tech for Transparency™ explores what more can be done, and needs to be done, to harvest the vast amounts of tax—nearly half a trillion US dollars every year—that some multinational corporations, billionaires, and global criminals avoid paying by shifting their taxable profits into the hidden economy.

And we recommend that nations earmark these harvested taxes for funding climate resilience initiatives and the full slate of the 17 United Nations Sustainable Development Goals (UN SDGs) that comprise the UN Agenda 2030.

We invite the digital science and anticorruption communities—along with other interested stakeholders—to collaborate with us on solutions that will enable coordinated international approaches to policy that will:

- Implement blockchain in every port and logistics transit point to ensure accuracy and integrity of global trade data.
- Harness the latest data science to strengthen and enhance national security.
- Pursue transparency while safeguarding privacy.
- Assure the quality of data in legal-entity and beneficial ownership registries from the point of input to the end of the data journey.
- Address economic barriers to data access faced by the public and investigative journalists pursuing transparency and accountability.
- Promote sharing and syncing of data across public and private platforms.

Executive Summary

Fifty trillion US dollars—that's the latest scholarly estimate of the hidden wealth in the world today. This staggering sum is concealed from law enforcement, regulators, and tax authorities by some of the world's wealthiest individuals and most powerful corporations, as well as by global criminals. Corruption in its many forms siphons off public funds—which could otherwise be deployed for the benefit of humanity—for personal gain. The result is a massive liability for humanity.

Tax abuse is one component of this puzzle. Nearly half a trillion US dollars (US$ 483 billion) 2 in tax revenues are lost each year to tax abuse (avoidance and evasion) by ultra-wealthy individuals and large multinational entities that engage in "profit shifting"—using legal or illegal "tax minimization" strategies to move their income and profits into the hidden economy. This erodes entire nations' tax bases right under their noses.

Latest estimates—based on new country-by-country reporting data collected by the Organisation for Economic Cooperation and Development (OECD)—peg the cost of individual tax abuse at US$ 171 billion a year, and corporate tax abuse at US$ 312 billion a year…but the total amount of tax lost annually to corporate tax abuse swells to more than US$ 1 trillion after factoring in the knock-on revenue losses that result when nations respond to tax abuse by reducing their corporate tax rates in the mistaken expectation that doing so will reverse capital flight and attract corporate investment back into the country.

The tax avoiders (legal loophole creators and exploiters) and evaders (outright criminals) have a massive advantage.

Highly motivated and consistently able to outspend government regulators, these perpetrators of global tax abuse operate in darkness—the impenetrable opacity of mind-bogglingly complex legal structures—and have first-mover's advantage (nations chase them after the fact). They exert powerful influence to create loopholes and secrecy havens and, where they can, engage in outright state capture.

Above and beyond these massive income tax losses, a range of illicit activities have evolved into an economy of its own that operates outside the rule of law, where profits are amassed out of exploitative industries that harm human flourishing. The hidden economy also makes nonfinancial assets—mansions, yachts, fine art, jewelry, racehorses, massive landholdings, gold bullion—disappear in "asset protection" schemes. It facilitates fraud, organized crime, evasion of customs duties, and the dodging of creditors; allows escape from obligations to abide by regulations that protect against environmental devastation, labor abuses, and other social harms; enables money laundering by drug cartels, corrupt politicians, human traffickers, terrorism financiers, kleptocrats, and illicit arms dealers; and threatens the national security of peace-loving nations.

Beneficial ownership transparency (BOT) is the sunlight that the global transparency and anticorruption movement brings to the darkness of crime, tax abuse, regulatory arbitrage, and outright regulation-dodging.

BOT enables nations to follow the money—opaque and illicit financial flows—to identify the secretive individuals who ultimately benefit from those transactions (beneficial owners).

BOT has the potential to dramatically increase the quality of governmental anti-money laundering

(AML) and countering the financing of terrorism (CFT) activities. With state-of-the-art BOT technology tools, public officials will be better able to identify and tax those shifted profits and the income earned on hidden wealth. This will place authorities in a position to require owners of that wealth to comply with environmental, labor, and public health regulations, and to impose criminal penalties where appropriate.

There is a fierce urgency to transparency and anticorruption efforts today, as the global community faces an existential crisis. Irreversible environmental damage and an increasing wealth gap threaten not only the structure of our civilization, but also our very existence. Simply put, if we are to survive as a species, we must recover those trillions in escaped tax revenues and illicitly obtained wealth— and reallocate them to address the most pressing global needs. We must invest those funds in a manner that is inclusive, equitable, and sustainable.

United Nations Secretary-General António Guterres reports that it will take five to seven trillion US dollars annually, from now through 2030, to finance the achievement of climate resilience and the other UN SDGs3. That's one reason SDG
16.4—in the context of promoting peaceful and inclusive societies—aims to reduce illicit financial flows and corruption. This goes hand in hand with an increase in accountability and transparency.

In our increasingly digital world, data silos and fragmented insight into beneficial ownership allow scattered tax avoiders and evaders to persist, using methods of growing levels of sophistication. In fact, criminal actors are often early adopters of innovation to stay ahead of government oversight.

Unfortunately, BOT in its current state—pursuing transparency without cutting- edge technology—is simply not up to the job, despite stunning successes on the political front and key agreements forged.

Tech for Transparency™ aims to upgrade BOT and enable nations to recover up to half a trillion US dollars each year—a healthy down payment toward financing achievement of the 2030 Global Goals—by marrying the world's most effective transparency and anticorruption activism with its most transformative digital science.

This is the goal of the financial transparency movement, and it is no pipe dream. For the first time, we possess both the political will and the critical technology. In this Tech for Transparency™ collaboration of data science and activism, we aim to create and deploy trailblazing open-source digital infrastructure that will actualize the full global potential of financial transparency.

In fact, some common ground appears to be opening between the unlikeliest of collaborators—the anticorruption activist community and large multinational corporations. Some big tech companies see business opportunities in offering tech- based improvements to governments that have committed to beneficial ownership transparency initiatives. Microsoft's "dynamic multipartite graph embedding" service is one example.

Other multinationals, responding to increasing political instability around the globe, have begun to express interest in supporting digital governance—a predicate for effective BOT implementation—and even an interest in BOT registries. Why?
Perhaps they understand that BOT and digitized government services are necessary to protect their supply chains and to help them navigate the uncharted waters of changing politico-economic risks.

Other insufficiently explored potential collaboration partners for anticorruption BOT activists include environmental, faith- based, human rights, labor rights, economic justice, and national security organizations—all of which have significant

interests in the tracing capabilities that will be developed for BOT in the Tech for Transparency™ initiative.

We invite and welcome collaborators from many areas—the Tech for Transparency™ initiative is a big (decentralized) tent.

Digital science advances have skyrocketed during the same period. Today, digitized data are central to many aspects of society, from the marketplace to government functions and healthcare systems.

Paper-based data management and record-keeping, siloed by nature, have given way over the past decade to a more transparent, agile, and tamper-resistant system of recording transaction information—the decentralized (distributed) ledger system made up of countless nodes within a blockchain that carries an anonymous personal identifier plus transparent data about the entities through which those data pass. These blockchain-based systems—which have been embraced by public- and private- sector organizations required to securely manage massive data volumes—are uniquely capable of addressing issues of financial transparency and anticorruption.

Contemporaneously, advances in artificial intelligence (AI) and machine learning (ML) allow application of ever-improving algorithms to analyze blockchain-based data to detect patterns that indicate suspicious activity—like money laundering, tax abuse, theft, and perhaps even terrorist and proliferation financing. Collectively known as Web 3.0, these advances eliminate data silos, the darkness where illicit financial flows have flourished for millennia. These tools are already in use by some law enforcement agencies today. Practical BOT challenges and their technological solutions (the work that remains) are explored next, in the context of a 6-stage data journey:

1. Data collection may proceed either "voluntarily"—as happens when we indiscriminately give away our private information to big tech firms or to the public as a whole (big data)—or by legal mandate. Data collection by law includes "know your customer" (KYC) and "customer due diligence" (CDD) regulations requiring banks and other financial intermediaries to acquire and report client identity information (including beneficial ownership information).

In most jurisdictions, KYC and similar identifying information is now recorded in a blockchain, as are most financial transactions. Registries of other types of data—purchases of real estate, yachts, or jets, for example—may be mandated as well.

Private data, including KYC and beneficial ownership (BO) information, can be collected and cross-checked using advanced information-sharing technologies and eventually recorded on a blockchain. When that happens, those practices must include strict privacy-preserving techniques —such as homomorphic encryption, zero-knowledge proofs, secure multiparty computation (SMPC), and cross- reference mechanisms (a better solution than data pools).

Collection of these data (digital identity and transaction information) is central to BOT. This collection is first and foremost a political issue—can a nation's legislature be persuaded to mandate it?—but the practical obstacle comprises human gatekeepers who may or may not compromise data (or accept inaccurate data) at this critical point of entry.

The ultimate solution here is to disintermediate human data management ("eliminate the middleman")—a task that can be addressed only by technology.

2. Data assurance—improving confidence in the quality and accuracy of the collected data—is a serious obstacle to BOT efforts today. (Is Mickey Mouse really the beneficial owner of as many shell companies as current records show?) AI/ML—when applied to multiple decentralized databases both governmental and in the common domain—enables triangulation of the collected data with big data and other sources to significantly improve the quality of collected data.

3. Data sharing is currently a significant impediment to effective BOT because privacy concerns lead to administrative (and even judicial) slowdowns in cross- jurisdictional data sharing, allowing avoiders (particularly nonresidents) to remain three steps ahead of the regulators. Administrative inertia is a big part of the problem as well. Even in countries with advanced BOT procedures in place, average lag time from data collection to user access is reportedly 15 days, and the average time to respond to another jurisdiction's request for information is reportedly 69 days. The original anonymized nature of blockchain data recording eliminates the privacy concern—and data assurance mechanisms should diminish the obstacles posed by any slow- walking government functionaries—so the distributed ledger system ought to allow instantaneous data sharing. And there are no silo problems because the algorithms go to the data, and not vice versa.

A chain is only as strong as its weakest link, however, so there remains the problem of political will. Universal cooperation among nations is crucial, as is collaboration—through, for example, Interpol or the Egmont Group—in seamless data sharing.

4. Data analytics and pattern recognition is where Web 3.0 really shines for BOT. AI-driven algorithms constantly improve in their ability to detect illicit activity patterns. At this stage of the data journey—when the identity of the beneficial owner is not known—the analytical results are highly useful for policymakers developing laws to bring clarity to opaque financial flows, now and in future.

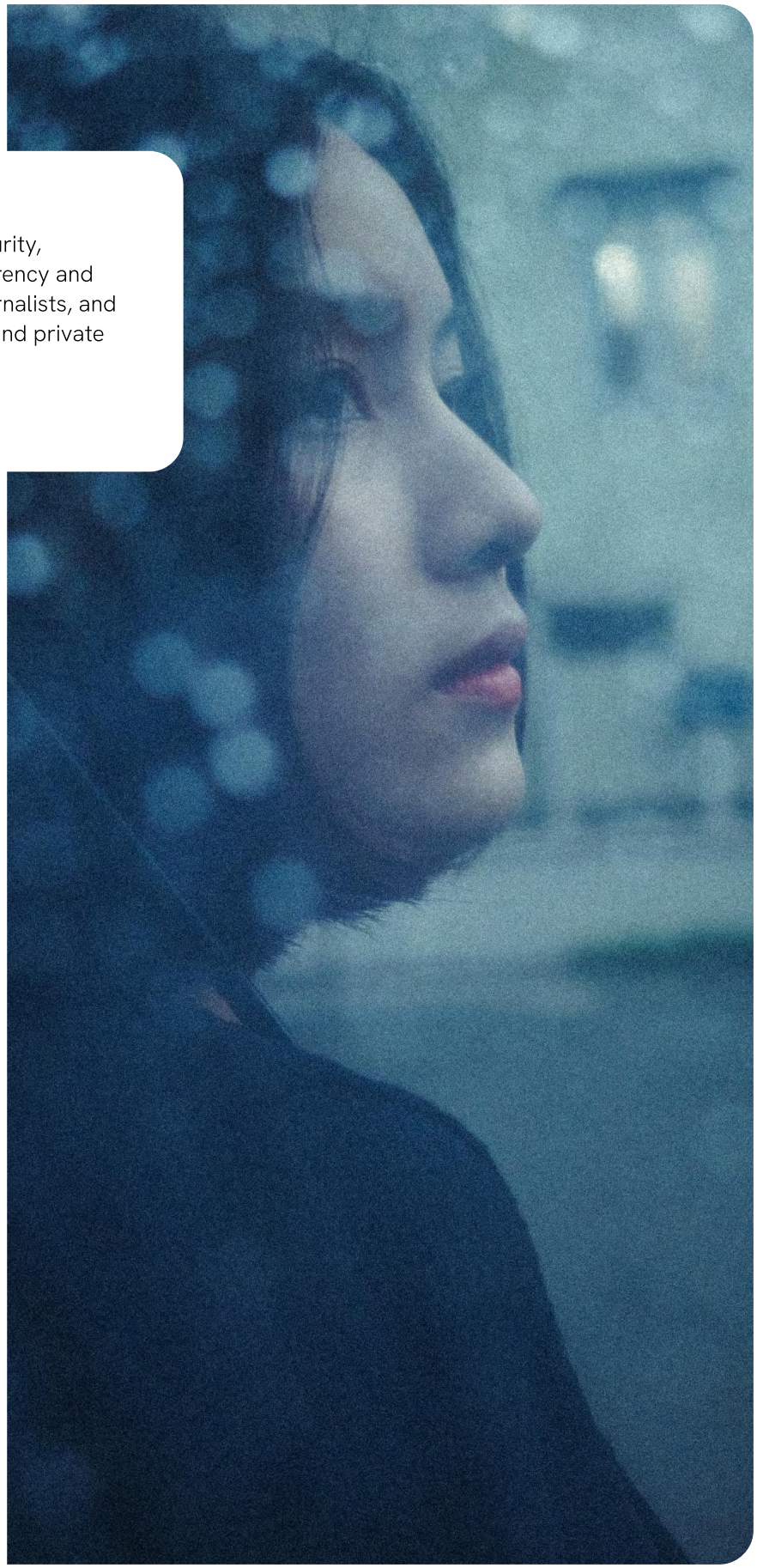
5. Data de-anonymization is the solution to the problem produced by the tension between claims of privacy rights and the need to investigate specific bad actors. And investigate, we must. After all, it is this group that is hiding that US$ 50 trillion. Once probable cause—or a comparable legal standard for the temporary suspension of privacy rights—is demonstrated, government agencies such as law enforcement or revenue collectors have the capacity to temporarily de-anonymize a blockchain-based address using zero- knowledge-proof technology.

6. Data re-anonymization effectively occurs at the conclusion of a governmental investigation. For all other interested parties, the blockchain remains anonymous throughout the data journey—unless political will is strong enough to take the very positive step of making such information available to the media in the interest of the public.

Two case studies are presented next, which illustrate the six stages of the data journey and the role of transparency described above. One case study addresses the evolution of data access in the investigative activist-journalist community, with Global Witness and the Organized Crime & Corruption Reporting Project (OCCRP) as prominent examples. The other case study examines India's approach. The public data infrastructure the country is rolling out— digital identity for all citizens and corporate entities—aims to facilitate digital payments, digital health records, COVID-19 vaccine certificates, credit ratings, and distribution of public services. The beauty of this approach is that it enables beneficial ownership transparency and other anticorruption initiatives, fosters public- private cooperation for transparency, and is scalable globally.

Our invitation to action—extended to all communities that find common ground in the healing of our planet—begins and ends this paper. The Tech for Transparency™ Workgroup seeks collaborators in the work of putting blockchain in

every port, strengthening national security, resolving the tension between transparency and privacy, increasing data access for journalists, and promoting data sharing across public and private platforms.





Setting the Scene: The Fierce Urgency of Now

Can we find a way through the planet's existential crises—climate emergency, pollution, biodiversity loss, increasing wealth gap and ensuing inequalities — with the mindset and thinking that allows corruption to flourish?

The greed and selfishness at the heart of corruption imperil our collective existence. As a species that pillages the planet like no other, our behavior is threatening the continuation of a biosphere capable of sustaining life.

As the lived experience of the last decade shows us, the climate catastrophe is the most visible of the crises ravaging the planet. Rising temperatures have led to melting ice in the Arctic and extreme weather events, including excessive annual precipitation in some regions. As a result, sea levels are rising. Hundreds of billions of dollars in capital, public and private, are at constant risk of being damaged and destroyed in floods, droughts, wildfires, and windstorms unprecedented in living memory—events with impacts that extend beyond the 600 million people who, living in coastal areas around the world, are at most immediate risk.

Environmental catastrophes have a disproportionate impact on lower income and vulnerable communities, with serious social implications. The persistence and magnitude of these negative outcomes can be traced to the governance of companies, organizations, and countries— specifically the failure to allocate and deploy resources to respond to current challenges and address the most pressing needs.

In the American civil rights movement of the 1960s, Dr. Martin Luther King Jr. evoked "the fierce urgency of now" as the rallying cry to unite all those fighting for equality.

Two generations later, when faced with the imminent need to deploy resources toward the climate crisis and its social and environmental effects, and for the sake of human justice, we revive that clarion call to unite all who seek to expose the hidden economy—up to US$ 50 trillion in wealth that evades legal scrutiny and taxation.

We must unleash the power of emerging technologies in conjunction with digital solutions we already have at hand today in the fight against financial opacity and corruption to enhance and strengthen beneficial ownership transparency, harvest avoided and evaded taxes, and clamp down on illicit activities. These funds can be directly deployed to finance and achieve the United Nations Sustainable Development Goals (UN SDGs).

The fierce urgency of now is to harness all the resources we can to pursue climate adaptation, mitigation, and resilience. This must include the hundreds of billions in public revenue that could be harvested by capturing avoided and evaded taxes.

These new revenues ought to be deployed to fund a comprehensive response to the triple crisis, and to go beyond, and fund achievement of the UN SDGs in the context of the UN Agenda 2030—the common aspiration of humankind for a sustainable future that works for all of us.

Indeed, anticorruption measures are at the heart of the UN SDG 16, which aims to establish peace, justice, and strong institutions.

Specifically, SDGs 16.4 to 16.6 aim to:

- By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organised crime

- Substantially reduce corruption and bribery in all their forms
- Develop effective, accountable and transparent institutions at all levels

Using SDG 16 as our guide, we intend to build on the successes already achieved, identify the challenges ahead, outline the enormous potential of data science and digital technologies to accelerate the fight against corruption, and invite collaborative action.
Identifying and taxing the income from shifted profits and income on hidden wealth can yield enormous revenues—even if only a portion of the US$ 483 billion in lost tax is harvested each year.

Even a modest amount would make a big difference.

What can be achieved with small amounts? Consider US$ 100, the amount a couple in the Global North might expect to spend on a nice restaurant meal. According to UNICEF:

US$ 100 will provide

274

children with safe water for drinking, bathing and household use

US$ 100 will provide

104

children with life-saving vaccines

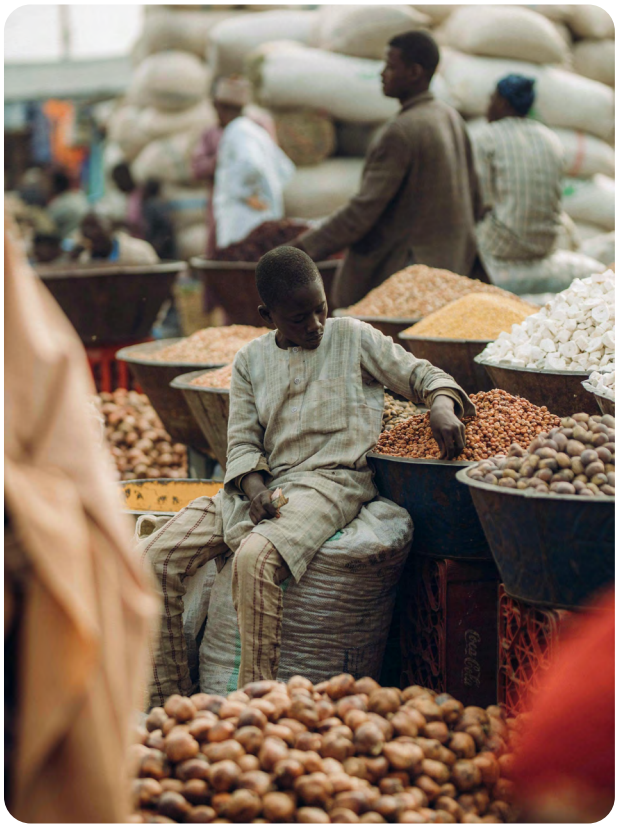
US$ 100 will send

55

therapeutic food supplements to 55 children

These figures may be familiar to many, but we want to go beyond "preaching to the converted" and reach those who may not be well-versed in world poverty and health statistics. We call on all parties to join in this endeavor because collaboration across stakeholders and alignment of incentives are fundamental to success. Enterprises, institutions, and individuals all have a key role to play.

Participation is particularly in the interest of multinationals, as it credibly positions them as good corporate global citizens and forward-looking organizations eschewing the hollow victory of clever tax avoidance/evasion schemes. The difficult journey we face needs all of us.





A Global Alliance: The Tech for Transparency™ Initiative

The Tech for Transparency™ Workgroup6 has been convened to pursue the hidden economy, the US$ 50 trillion of hidden wealth and the half a trillion US dollars a year in dodged taxes. This is often—but not always—the product of criminality and corruption. We aim to use the power of data science and digital technology to expose the hidden economy, which often exploits the many opportunities for subterfuge offered by the World Wide Web, including the anonymous parallel Internet termed "Darknet," to evade and elude scrutiny.

This initiative took shape in the wake of Prosperity Collaborative's New Foundation for the Global Digital Economy symposium (June 22, 2022, MIT), when The Digital Economist convened a working group to marry the most visionary digital science with the most advanced anticorruption activism.

In addition to internationally respected data scientists and anticorruption thought leaders, the Tech for Transparency™ Workgroup includes visionary business leaders and economic futurists. All share the conviction that transparency is an essential foundation of a sustainable and inclusive global economy and a fundamental component of a functioning democracy. It also supports robust economic growth on the basis of capitalism by ensuring equal opportunity to all players. We observe that excessive financial secrecy threatens to push democracy and capitalism—which in a healthy society must operate in balance—out of alignment. If we are to protect and strengthen the world's existing democracies and lay the foundations for emerging democracies to flourish, we must bring transparency to capitalism.

Based on these thoughts, we have gathered to explore how to harness the transformative potential of a decentralized, Web 3.0-, blockchain-, artificial intelligence (AI)-enabled, open-source, global, digital public infrastructure to actualize the fullest potential of the beneficial ownership transparency (BOT) movement.

We launch our initial position paper at the 2022 International Anti-Corruption Conference (IACC), an event of global significance that—sponsored by Transparency International (TI) and a host government—biennially convenes anticorruption experts to promote global transparency, accountability, honesty, and integrity.

The problem we address is pervasive, entrenched, and devastatingly destructive to the people of the world.

It is all too easy to hide wealth and assets, whether legally or illegally acquired. Those wishing to hide their questionable, illicit, or illegal actions—individuals with significant fortunes, transnational corporations, tyrants who loot public coffers, criminals, and others whose mode of living is well beyond their visible means—can readily do so today.

These actors deploy complex webs of transactions among and within anonymous legal entities to stash significant wealth and profits in tax havens and secrecy-inducing jurisdictions around the planet.

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It is all too easy to hide wealth and assets, whether legally or illegally acquired. Those wishing to hide their questionable, illicit, or illegal actions—individuals with significant fortunes, transnational corporations, tyrants who loot public coffers, criminals, and others whose mode of living is well beyond their visible means—can readily do so today.

These actors deploy complex webs of transactions among and within anonymous legal entities to stash significant wealth and profits in tax havens and secrecy-inducing jurisdictions around the planet.

Best available scholarly estimates suggest that as much as fifty trillion US dollars of hidden wealth evades the visible global economy. If that wealth can be uncovered and traced to its beneficial owners, nations then would be able to tax the net income generated by that wealth, yielding almost half a trillion US dollars of annual revenue that could be earmarked to fund the United Nations Sustainable Development Goals (UN SDGs) in the context of the UN Agenda 2030.

These numbers come from McKinsey's former chief economist Jim Henry—who updated his 2012 report The Cost of Offshore Revisited this year with more recent (and more reliable) OECD data— and from an alternative estimation methodology developed collaboratively by the Global Alliance for Tax Justice, Public Services International, and Tax Justice Network. These alternative approaches produced estimates in the same ballpark.

This evasion of legal and civic obligations amounts to looting of public assets. It deepens and perpetuates inequality. Tax and regulatory avoidance exacerbate and entrench exclusion and inequity, depriving humankind of the resources needed to achieve the UN SDGs. Available fiscal and regulatory loopholes enable bad actors to persist—drug traffickers, arms merchants, financiers of terrorism, and conspirators in human trafficking operate with impunity as they spread misery, death, and devastation—in a scandal that undermines humanity.

Wealthy countries with robust taxation systems lose more funds to tax avoidance and evasion by corporations and private wealth, but middle- and low-income nations suffer disproportionate harm

because the amount of revenue forsaken represents a much greater percentage of their national GDP. As a direct consequence, most governments in the Global South are robbed of the taxes necessary for public services and basic human needs. Extreme poverty in resource- rich countries—with the many left to suffer while the few enrich themselves through corrupt means—is an affront to human dignity. As Mahatma Gandhi put it, poverty is the worst form of violence. And it represents the moral collapse of society.

Thanks to IACC and its partners, global public opinion and political will are coalescing around solving the problem with "sunlight"—facilitated by transparency through established, transformative technologies that dramatically improve the tracing of fund flows and identification of their ultimate beneficial owners.

The advances in digital technologies enable us to strengthen transparency and accountability—and to affirm Gandhi's observation that there is enough on this planet for everyone's need, but not for everyone's greed.

Recent Advances in Beneficial Ownership Transparency and Data Science

Over the last 15 years, revelations regarding the negative impacts of secrecy in the global financial architecture—as well as the enabling role various professions have played in facilitating the shifting, hiding, and laundering of funds—have

comprehensively changed how opacity and corruption are viewed by those with power and influence.

Economists, governments, and multilateral institutions that once scoffed at claims that financial secrecy perpetuated illicit financial flows, tax evasion, and inequality now universally accept the premise. The hidden economy and the resources it robs from the public are now under scrutiny.

Based on the work of research, investigation, and advocacy organizations—like Transparency International, Open Ownership, Global Financial Integrity, Tax Justice Network, Global Witness, and OCCRP—along with committed policymakers, governments are evolving from viewing beneficial ownership transparency as unthinkable to considering it as part of sustainable fiscal policy. The role of the media in exposing the scope and scale of the secrecy/illicit flows problem has been noteworthy and is among the key reasons this issue is well understood and a concern to policymakers. The following list of scandals underscores the point:

- 2014 Lux Leaks: Revealed the extent to which Luxembourg established tax avoidance schemes for multinational corporations.
- 2015 1MDB scandal: A broad corruption, bribery, and money-laundering conspiracy involving the then Prime Minister of Malaysia Najib Razak, Goldman Sachs, and others. The conspirators used offshore banks and anonymous shell companies to siphon an estimated US$ 4.5 billion from an investment fund.
- 2016 Panama Papers: The investigation revealed that Panamanian law firm Mossack Fonseca established over 200,000 offshore entities which, in many cases, facilitated tax evasion. The revelations led to the resignation of Iceland's Prime Minister Sigmundur Davíð Gunnlaugsson.
- 2017 Paradise Papers: A leak of 120,000 documents from law firm Appleby and two business services firms, which established shell companies in Jersey, Guernsey, Mauritius, and other offshore jurisdictions to enable tax avoidance and evasion schemes.
- 2018 Danske Bank scandal: Described as possibly the largest-ever money laundering case in Europe, the (now- closed) Estonian branch of Denmark's Danske Bank laundered some 200 million euros from 2007 to 2015. The CEO resigned and Denmark has now established some of the world's toughest penalties for money laundering.
- 2019 Mauritius Leaks: The leak of over 200,000 files from global law firm Conyers Dill and Pearman revealed how multinational firms avoided taxes in Africa, Asia, and the Middle East by using Mauritius-based entities.
- 2020 Luanda Leaks: The leak of over 700,000 files documents how Isabel dos Santos, daughter of the former Angolan President, amassed a fortune of more than US$ 2 billion using public funds to acquire some 400 companies around the globe.
- 2021 Pandora Papers: A massive scandal that highlighted how hundreds of high-net-worth individuals in politics, sports, media, and entertainment used secrecy in the global financial system to shield their wealth from tax authorities and revealed that the United States is a prime global tax haven.

In parallel, government authorities and other organizations have launched a range of initiatives to shed light on the hidden economy and expose tax avoiders, abusers, and evaders. These include the following:

- In 2011, UNECA established the High Level Panel on Illicit Financial Flows (IFFs) in Africa to address the issue on the continent most adversely impacted by IFFs.

- In 2013, the G8 countries highlighted the problem posed by anonymous shell companies and the governments committed "to take action to tackle the misuse of companies and legal arrangements."
- In 2015, the United Nations agreed to include a target (SDG 16.4) on illicit financial flows to its SDGs in the context of the UN Agenda 2030. This was the first time the term "illicit financial flows" was included in a global document, which represented a formal recognition that a significant problem existed.
- In 2017, the UK introduced its Unexplained Wealth Order statue in the Criminal Finances Act. When imposed, it requires an individual to demonstrate how the funds used to purchase high-value property were obtained.
- Significant strides have been made to develop localized beneficial ownership transparency (BOT) registries with data- gathering and -sharing standards that reveal the individuals who (directly or indirectly) are the ultimate controllers of every legal entity.
- In 2022, FATF and Interpol signed their first joint agreement to share data to better identify, freeze, and seize criminal assets.

Much can be accomplished when governments take aggressive measures to combat the pervasive effects of the hidden economy. An example at the subnational level is illustrative: The government of British Columbia, Canada, commissioned reports on money laundering and took a number of remedial measures, which are scalable, particularly in jurisdictions with representative governance. In 2019, the province:

- Introduced legislation to establish Canada's first public registry of beneficial owners to put an end to the hidden ownership of real estate in B.C.
- Established Canada's first online registry for pre-sale condo agreements to track transactions
- Updated the property transfer tax return to uncover beneficial owners behind corporations and trusts
- Strengthened property transfer tax auditors' ability to take action against tax evasion
- Implemented the speculation and vacancy tax, which targets foreign owners and satellite families that own real estate in the province, but pay little or no tax in B.C.
- Established a federal-provincial working group on tax fraud and money laundering

These are tangible measures to shine light on the criminality, corruption, tax evasion, and tax avoidance that drive the hidden economy.

Anticorruption activists have made significant strides in their resolute and focused mission to expose wrongdoing. Their efforts will be significantly strengthened by pairing beneficial ownership transparency more thoroughly with the latest digital science. Let us consider the transformative potential.

Shedding Light on Hidden Ownership

Scofflaws have long used a byzantine skein of measures to hide and mask their actions. All of those veils can be unraveled by data science. For this purpose, blockchain functions in combination with other emerging technologies. For example, Internet of Things (IoT) solutions can reliably capture data, which can then be recorded on a blockchain, while artificial intelligence (AI)–and/or machine learning (ML)–based analyses identify patterns to enable informed decisions.

Digital identity is key to enabling virtually all aspects of transparency, such as beneficial ownership registers, trade finance risk assessment, and anti-money laundering (AML) and countering the financing of terrorism (CFT) measures. A digital identity is issued by a legitimate government

authority to represent a specific entity, which can be an individual, organization, or asset. It comprises the fundamental piece of data that connects activities such as fund flows with the actors responsible for them. These data must be traced in order to shine light on activities and movements of funds where illicit activity is suspected to occur.

Blockchain technology provides an irrefutable and comprehensive record of the movements of data from activities that take place across different systems, jurisdictions, and formats. It offers a holistic view of the entire data journey across movements of funds and other activities, connecting them to the underlying actors. Blockchain can also be used to connect different data repositories, removing data silos where activities can take place in the dark. Ultimately, the transparency and immutability of records on a blockchain can provide the necessary data inputs for sophisticated algorithms with AI/ML to trace fund flows on an end-to-end basis and detect patterns that indicate, and even anticipate, suspicious activity— like layering, money laundering, hacking, and fraud.

In terms of corporate environmental, societal, and governance (ESG) commitments and obligations, blockchain technology can deliver a holistic and reliable view of activities and outcomes.

The inherent immutability and transparency of data recorded on a blockchain afford authorities an advantage in countering illicit cryptocurrency asset flows. Based on sophisticated algorithms, transactions recorded on a blockchain can be monitored and patterns of illicit activity detected and flagged by law enforcement. All the fund flows across digital "wallets" can be traced back to the first time an individual purchased cryptocurrency, signed onto an exchange, and downloaded a wallet —the point at which the purchasing party is required to submit know-your- customer (KYC) information. While these transactions are recorded anonymously on a blockchain, moving funds around different wallets—a tactic aimed at confusing tax auditors, regulators, and law enforcement—can be rendered ineffectual. All fund flows are recorded immutably and can be connected across data journeys back to the individuals behind them.

Many law enforcement entities around the world now use specialized blockchain analytics forensics tools to conduct investigations of this nature. Once they flag a wallet containing stolen funds or illicitly obtained funds, it becomes very difficult for the wallet owner to utilize those funds or "cash out" because as soon as the funds move, law enforcement can track them. As soon as the criminal decides to convert cryptocurrency to fiat (a conventional government-backed national currency), the funds enter the banking system where KYC information is connected to the illicit activity recorded on the blockchain. This for practical purposes serves to freeze funds because as soon as criminals move them, they know they are on watch.

Yet most money-laundering activity today still takes place with fiat currency, where that transparency doesn't exist. On the contrary, the current banking system is marred with data silos and intermediated exchanges that add risk through inefficiencies and lack of transparency. For instance, in the context of clearing and settlement—simple exchange of ownership of financial products involving delivery from seller to buyer and monetary payment from buyer to seller— transactions take two days before the asset is credited to the new legal owner (termed T+2, for "transaction + 2"). During this time, ownership of an asset is unclear. For more sophisticated financial products, which are often less liquid, clearing and settlement can take even longer.

Blockchain-based transactions not only take place in real time but can also bring light to the full amount of taxpayer obligations and corresponding payments—and the revenue that countries may be

losing. By providing transparency to fund flows, blockchain technology can also support the case for creation of better policies and regulations to reduce tax evasion and illicit activities, as well as monitor compliance.

Many of the blockchain applications are already in the conceptualization stage. Examples include a blockchain-based beneficial ownership registry, a taxpayer registry, a record of tax payments, and a global trade finance record.

For optimal implementation, we need an ecosystem of engaged participants, with buy-in from key decision makers, and incentives for users to participate at the individual level. We also need the investments and effort for integrations with current systems/data migrations.

From another perspective, the socially responsible investing (SRI) concept has lessons for the BOT methodology. Taking the cue from the evolution of criteria for SRI, Tech for TransparencyTM can provide guidelines and risk mitigation strategies to support AML and CFT measures, which can become pillars of good governance for banks, financial institutions, and other aspects of trade and finance.

This can also be a way for organizations to credibly fulfil ESG standards, as investors become more critical and follow rigorous standards regarding the entities they support. The BOT movement can recommend specific opportunity areas that would gain significant value if loopholes were closed, as well as high-impact solutions around specific industries in relation to government, corporate, and individual activities.

The Transformative Power of Digital Science

Advances in digital science, when conjoined with political advances driven by the activist community, open opportunities for exponential progress in anticorruption work—and it is this marriage of science and activism that the Tech for TransparencyTM initiative aims to catalyze. Our fight against corruption draws strength from the fact that digitized data are central today in almost all areas of society, from interactions between consumers and online/offline merchants, international trade and financial transactions to government and institutional functions.

Distributed ledger technologies, first and foremost blockchain, are rapidly overtaking paper-based data management and record-keeping, which are siloed by nature. Digital financial technologies—including national asset- based digital currencies like the digital renminbi in China and the digital rupee in India—enable a more transparent, agile, and tamper-resistant system of recording of data in a blockchain that carries an anonymous personal identifier plus transparent and traceable records of the entities or pipelines involved in the data journey. As governments and institutions have already recognized blockchain- based systems as the solutions of choice to securely manage enormous data volumes—blockchain will inevitably be available to serve as a foundation for a transforming and expanding the capacity of beneficial ownership transparency.

gain, we emphasize the powerful role that AI and ML—utilizing immutable blockchain-based data—can play in the fight against opaque and illicit financial flows through ever-improving algorithms that detect patterns signalizing financial and/or fiscal abuse. The innovative application of AI/ML will cast new light on money laundering, tax abuse, theft, human trafficking, arms trafficking, and financing of terrorism and violence. As Web 3.0 becomes the global standard, these technologies, which are already in use by international law enforcement, will help eliminate dark data silos and continue to improve through collaboration and data sharing.



The Work that Remains: Challenges and Opportunities Along the Data Journey

Despite these impressive milestones, there is more to be done. We believe the power of data science will further accelerate the exposure of the hidden economy—and enable its taxation. But we acknowledge that there are practical obstacles to making beneficial ownership transparency measures more effective.

The European Court of Justice, for example, issued a decision7 in November 2022 that invalidated a provision of an EU anti-money laundering law that guaranteed public access to beneficial ownership (BO) information. We strongly disagree with the decision, for the public disclosure of BO data enables investigative journalist-activists to go beyond the efforts of resource-strapped government agencies in order to identify and document the diversion of public resources to private enjoyment by the tiny ultra-wealthy few—journalistic activity that is a public good. But this recent legal decision is a reminder of the significant barriers to public disclosure, notably within legal systems that indiscriminately give primacy to privacy at the expense of the universal right to equal and equitable financial and fiscal treatment of all stakeholders.

Fortunately, today's transformative digital science —the decentralized data repositories of Web 3.0 and blockchain, the stunning capabilities of artificial intelligence and machine learning, real- time computing capacity—provides transformative methods to overcome those obstacles.

These obstacles and their solutions are discussed here in the context of a 6-stage data journey: collection, quality assurance, access and sharing, analytics and pattern recognition, de-anonymization when patterns provide probable cause to suspect illicit activity, and re-anonymization to protect privacy.

1. Data Collection

Data collection may proceed either "voluntarily"—as happens when we indiscriminately give away our private information to big tech firms or to the public as a whole (big data)—or by legal mandate. Data collection by law includes "know your customer" (KYC) and "customer due diligence" (CDD) regulations requiring banks and other financial intermediaries to acquire and report client identity information (including beneficial ownership information).

In most jurisdictions, KYC and similar identifying information are now recorded in a blockchain, as are most financial transactions. Registries of other types of data—purchases of real estate, yachts, or jets, for example—may be mandated as well.

Collection of these data (digital identity and transaction information) is central to BOT. This collection is first and foremost a political issue—can a nation's legislature be persuaded to mandate it?—but the practical obstacle comprises human gatekeepers who may or may not compromise data (or accept inaccurate data) at this critical point of entry. The solution is to eliminate the "middleman"— a task that can be addressed only by technology.

2. Data Assurance

There is a significant need to ensure that registered

beneficial ownership information is accurate and updated. Otherwise, registered information will be of little use.

Insufficient confidence in the quality and accuracy of collected data is a serious obstacle to BOT efforts today. (Is Mickey Mouse really the beneficial owner of as many shell companies as current records show?) Artificial intelligence (AI) enables triangulation of the collected data with big data and other sources to significantly improve data quality.

Improved assurance regarding data quality should involve validation of the data (is the tax ID in a valid format?), cross-checks against government records (do the tax ID and name of the beneficial owner match the tax administration's records?), and authorization (has the named beneficial owner authorized and confirmed that he or she is in fact the beneficial owner, confirming that this is not a case of identity theft?).

It might be argued that data quality assurance has its limits when it relates to individuals who are nonresidents—where the government has no records against which to cross-check nor knows what a foreign tax ID looks like to validate it. It might also create problems when nominees are used—who may have given real and valid details, but who are otherwise nominees acting on behalf of the real beneficial owner.

And yet this important nominee issue can also be addressed with a tech solution. For example, if investigators had the wherewithal to apply AI and machine learning (ML) to big data and multiple government databases, they would have been able to determine that Svetlana Krivonogikh—Russian president Vladimir Putin's alleged mistress and former house cleaner, as reported in the Pandora Papers—was unlikely to personally possess the US$ 100 million that she spent on the purchase of high-value assets including apartments in Monaco and St. Petersburg, as well as a yacht. Nominee detection alarm bells would have gone off, and a search for the real beneficial owner would have been triggered.

The identification of nominees requires more sophisticated analysis, such as checking whether one "registered" beneficial owner appears to control hundreds of companies, or where the individual's declared income would be insufficient to finance the acquisition of his or her holdings in high-value or high- income companies. This is well within the capacity of transformative digital technology.

Blockchain implementation has its dangers regarding opacity, obfuscation, fraud, and the ability to avoid central bank regulation. But these dangers are manageable, and blockchain is here to stay, so it should be harnessed for all its extraordinary anticorruption potential: blockchain records are immune to fraudulent manipulation because, once created, they cannot be changed. A blockchain is immutable.

Once beneficial ownership transparency is available for all legal vehicles—companies, partnerships, foundations, trusts, and other legally constituted entities—it could be combined with registries in order to determine the beneficial ownership of illiquid assets such as real estate, yachts, and private jets, often cloaked in anonymity.

3. Data Sharing and Access

Cross-border sharing of data is fraught with obstacles, foremost among them being concerns about data privacy. Some of these concerns are legitimate, but many are not. When tax abusers and other scofflaws raise privacy concerns, cross-border sharing of urgently needed data can grind to a halt.

By the time investigators gain access to the data (if they get it at all), the actor in question may have already moved on to an all-new replacement structure. The superior innovative resources of those intent on avoidance of scrutiny—along with first-mover advantage—often cannot be overcome unless investigators have the capacity to move with lightning speed.

Administrative inertia remains a problem. Even in countries with advanced BOT procedures in place, average lag time from data collection to user access is reportedly 15 days, and the average time to respond to another jurisdiction's request for information is reportedly 69 days.

The original anonymized nature of blockchain data recording eliminates the privacy obstacle, and data assurance at point-of-sale (initial client contact with the business-intake intermediary) should disintermediate any slow-walking government functionaries, so the distributed ledger system ought to allow instantaneous data sharing. And there are no silo problems because the algorithms go to the data, and not vice versa.

A chain is only as strong as its weakest link, however, so there remains the problem of political will. Universal cooperation among nations is crucial, as is collaboration— between Interpol, the Egmont Group, etc.—in seamless data sharing.

Real-time corruption identification is within the realm of the practical. Through an open- source country stack approach, real-time data from distributed databases of various corporations, individuals, and government agencies can be cross-linked. Such a cross- connected database can serve as a source from which to feed AI-based algorithmic monitoring solutions to track wealth movements. In India, tax authorities are already using AI to scrutinize certain individual and corporate taxpayers' returns filing. (See the case study "India Stack," below.)

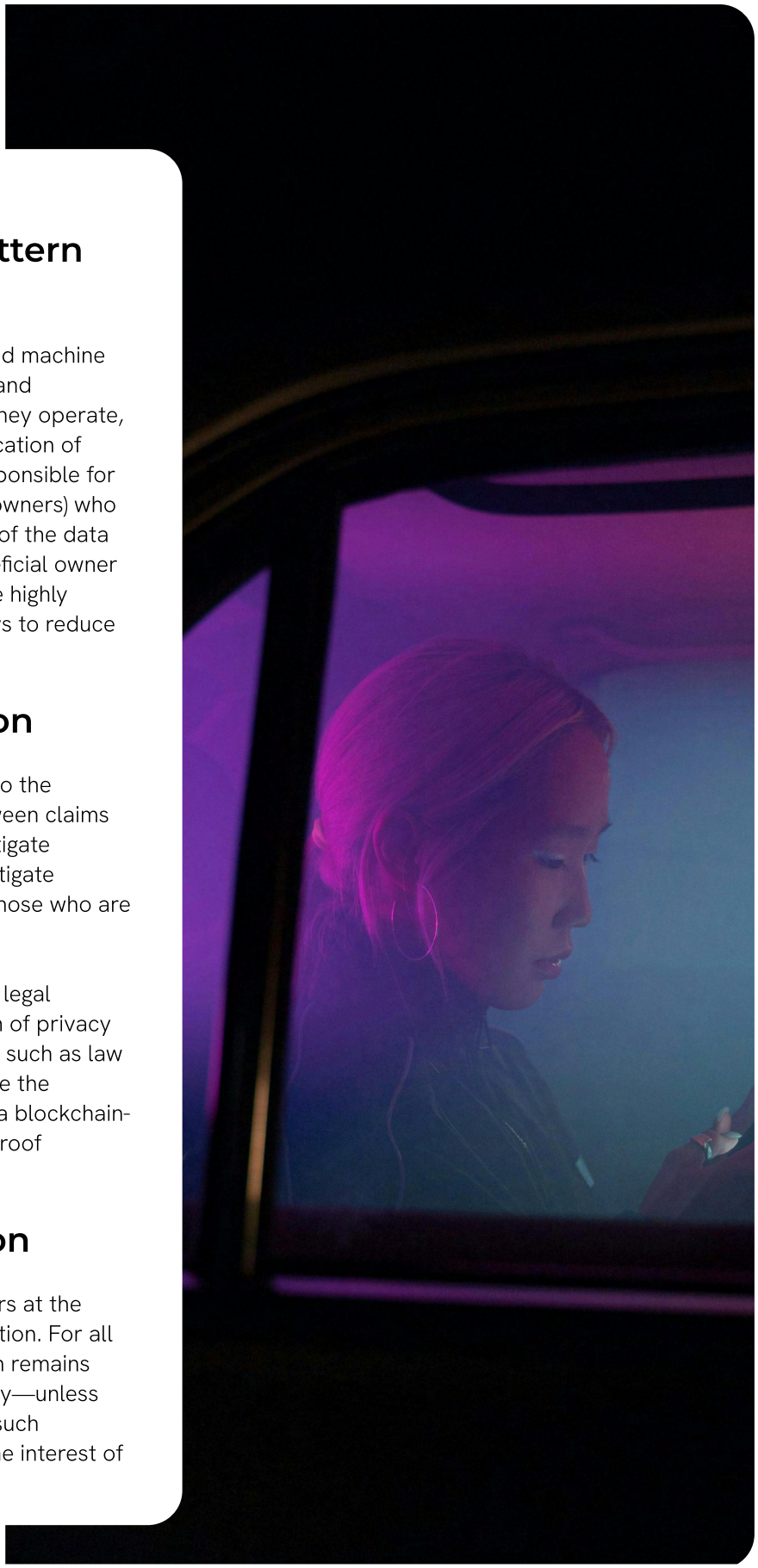
Privacy of data can be a legitimate interest or merely a tool for obfuscation. A significant challenge to central collection of people's beneficial ownership data is the right to privacy. This challenge is particularly acute when these data are, or are proposed to be, made public. There are few strong arguments in favor of zero disclosure of this information to the government, and most legal regimes provide a clear definition of permissible data collection on the grounds of fighting or preventing crime. Where the data are to be made public, all legislation provides a clear exemption regime for those beneficial owners who can provide credible evidence of dangers to their personal safety were the information to be disclosed.

Current international agreements allowing data sharing between countries are patchy, and requests for information made by smaller jurisdictions are often not promptly responded to. A solution to this challenge, while ambitious, is to consider new treaty obligations for participating states to ensure reliable and instant access by all involved states in a new beneficial ownership data-sharing regime. Its structure would be similar to the agreements and technology in place among European Union member states.

Where concerns about data sharing between jurisdictions exist, there is a clear opportunity to use zero-proof technology. This would be particularly valuable where a jurisdiction wishes to verify the identity of a foreign beneficial owner. For many jurisdictions, this is currently a significant barrier to ensuring high-quality verified data across the entire beneficial ownership dataset. Verification of citizen and resident beneficial owners is clearly far easier, as the necessary identifying information is endogenous. Further political and technical work is required to explore how an international system of ID checking could be made available to all parties.

The decentralized data foundation of Web 3.0/ blockchain has the potential to obviate the need for data sharing. Decentralized ledgers can sit where they are, while the AI/ML algorithms come to them.

That is, Web 3.0 can transcend the data silo problem—inescapable in a world dominated by paper records or disconnected digital records—meaning that it has the potential to minimize the need for sharing protocols among a host of local siloed BOT registries.



4. Data Analytics and Pattern Recognition

The capacity of artificial intelligence and machine learning (AI/ML) to enhance the power and effectiveness of algorithms each time they operate, opens up vast potential for the identification of illicit financial flows, those who are responsible for that activity, and those (the beneficial owners) who benefit from that activity. At this stage of the data journey—when the identity of the beneficial owner is not known—the analytical results are highly useful for policymakers developing laws to reduce future opaque financial flows.

5. Data De-Anonymization

Data de-anonymization is the solution to the problem produced by the tension between claims of privacy rights and the need to investigate specific bad actors. And we must investigate because these bad actors are among those who are hiding that US$ 50 trillion.

Once probable cause or a comparable legal standard for the temporary suspension of privacy rights is satisfied, government agencies such as law enforcement or revenue collectors have the capacity to temporarily de-anonymize a blockchain-based address using zero-knowledge-proof technology.

6. Data Re-Anonymization

Data re-anonymization effectively occurs at the conclusion of a governmental investigation. For all other interested parties, the blockchain remains anonymous throughout the data journey—unless political will is strong enough to make such information available to the media in the interest of the public.



Two Case Studies Illustrating the Power of Digital Science

Study I—India Stack (Data Democratization)

The foundation of this public data infrastructure—digital identity for all citizens and corporate entities—aims to facilitate digital payments, digital health records, COVID-19 vaccine certificates, credit ratings, and distribution of public services. The beauty of this public infrastructure is in its commitment to open-source and public-private participation. Various public players such as mobile developers and software companies are invited to design mobile and backend applications for use by businesses and citizens.

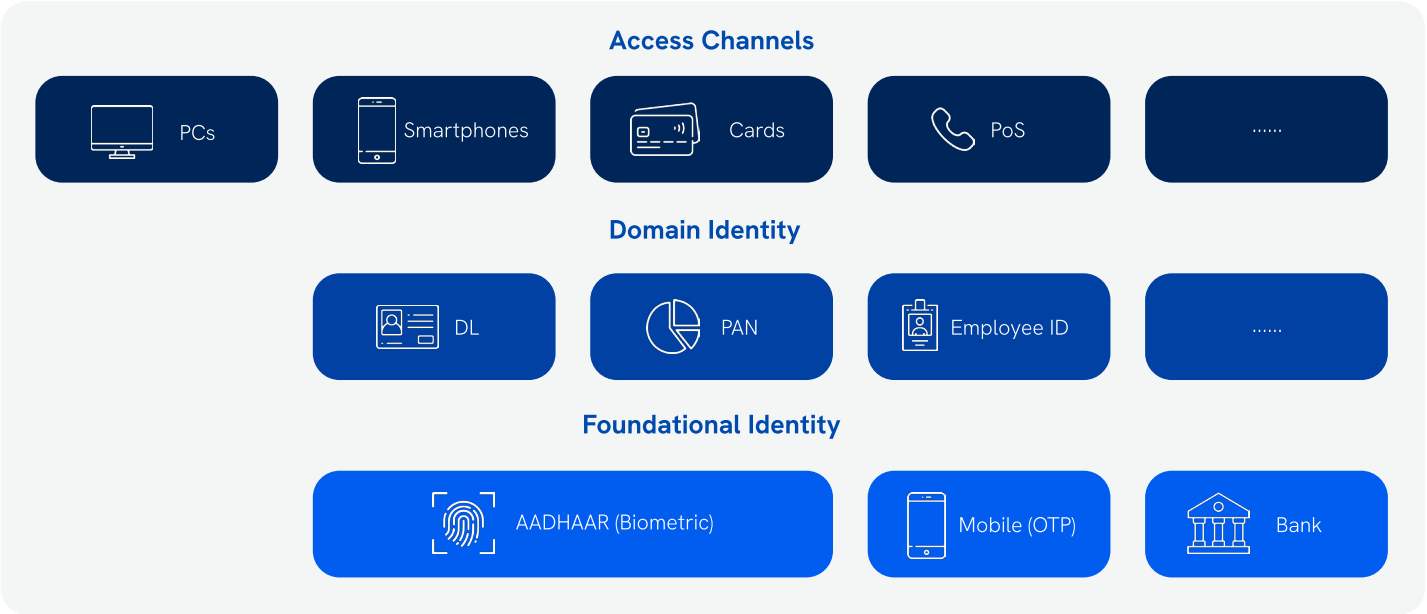
As one of the additions to this stack of services, the central bank Reserve Bank of India (RBI) launched a pilot program starting on November 1, 2022, to release a central bank digital currency (CBDC), also called "digital rupee." The digital rupee is meant to serve two segments, beginning with the wholesale segment (bank-to- bank transactions). Eventually, the digital rupee will serve the retail segment (retail and business bank customers). The digital rupee project of RBI represents a significant advance in monitoring, controlling, and preventing tax evasions along with other corrupt practices that were otherwise left unnoticed.

Our Tech for TransparencyTM Workgroup proposes a collaborative evaluation of the potential and value of scaling the Indian model and adapting it globally as a public digital infrastructure to create an open- source global stack for database sharing. As in India, the infrastructure would span across various government and business associations with use of blockchain, artificial intelligence (AI) and machine learning (ML), and data analytics to foster public-private participation for transparency.

This invitation to collaborate is particularly pertinent as India assumes the presidency of the G20 group of nations (which generate more than 85 percent of global economic output) for 2023. The scalability of the Indian model within the G20 itself carries enormous promise, as India pursues a G20 theme of "one earth, one family, one future," anchored in women-led societal development that leaves none behind.



Figure 1: The India Stack



The idea behind India's public data infrastructure is data democratization. The government of India is trying to enable a system of "data of the people, by the people, and for the people." In this model, all layers of technology are created to support various public services and— critically—are accessible on an open- source basis. Any corporate or individual developer can contribute to the creation of public or business applications that use the various technologies and databases.

Examples include:

- **Aadhar/Digital ID:** The Indian government has launched a public open-source digital infrastructure utilizing digital identities of citizens and businesses as a base
- **Telecom/Internet/Mobile:** The government has focused on telecommunication and Internet network penetration to underserved geographies in the country to extend smartphone accessibility
- **Bank accounts:** It is encouraging opening bank accounts to far rural areas even if this means the opening of zero-deposit bank accounts
- **Transactions:** With digital IDs, mobile Internet and bank accounts, various business-to-citizen, government-to- citizen, and business-to-government transactions were enabled through an open payment system connecting banks, Visa/Mastercard/third-party payment gateways with digital identities
- **Data hosting and sharing:** All corporates, banks, financial institutions will share their database over open application program interface (API) with a blockchain-enabled cloud with built-in AI and analytics capabilities

With India Stack, the government will not have access to a full database but will have partial visibility while respecting privacy of corporations/ institutions. This open API will run over a stack or layer of services with corporate digital IDs, various revenue, tax, other government, and corporate records. There will be an algorithm that runs across all of these layers/stacks to identify any anomalies /irregularities in ownerships, transactions, movement of wealth, and the like.

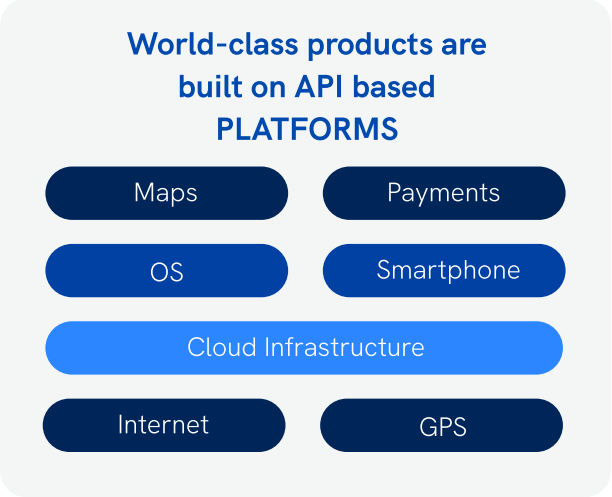
It is important to emphasize that although the India Stack is initiated by the government, it is not controlled by the government. The government may be the enabler, but it is not an intrusive arbiter.

The open API and database-sharing concept will lead to an additional database on top of other databases that exist for various other purposes such as digital health ID, corporate ID, digital citizen ID, COVID vaccine certificates, etc.

While the discussion above addresses Indian public goods delivery, similar approaches can be replicated or developed as greenfield projects in other countries.

Additionally, there is potential for international database sharing across ASEAN, G8, Quad, or other groups of countries that may choose to collaborate in the Tech for Transparency™ initiative.

Figure 2: General commercial stack approach



- Internet services over mobile /laptop along with GPS enable location data sharing
- Cloud infrastructure supports transfer and storage of location data
- Hardware and software running smartphones enable access to location data
- Maps and other apps running over smartphones enable access to apps and services such as Uber, Airbnb, Zomato, etc.
- Also consider blockchain solutions to safeguard digital identity, privacy, and data sharing—in a transparent and immutable form that requires no trust between entities interacting with each other and also adds reliability to the data recorded
- Citizens can own their data records and decide to share them
- Blockchains record hashes that provide proof of the underlying transaction data
- Governments can request original data records and recompute the hashes recorded on the blockchain to ensure nobody has manipulated the data
- Cryptographic techniques— hashing and zero knowledge proofs to safeguard data privacy

A similar stack approach can be used in the Tech for TransparencyTM initiative for monitoring and implementation, with various data sources, apps, databases, and analytics running on top. At the same time, it is essential to rely on quality data to avoid the "garbage in, garbage out" problem— this will be ensured based on the other tech solutions discussed earlier in this paper.

Technology solution possibilities—at both the national and international levels—for consideration include:

- **Layer 1–Data:** Open, decentralized, and distributed database with use of blockchain can support the base layer/stack of the solution.

- **Layer 2–Analytics/Intelligence:** On top of layer 1, AI/ML and data analytics algorithms can run to connect the dots and identify patterns and movements of wealth by processing immutable data recorded on a blockchain. As a result, authorities can make informed decisions.

- **Layer 3–Access:** Above layer 2, access layer will support various controls, administration, management, and monitoring of transactions, ownership changes, wealth movement across various entities, geographies etc. This layer will also provide control, management, administration rights to certain agencies authorized to handle the matter, such as government ministries, Interpol, World Bank, United Nations.

Potential Approach—International:

- An international working group could be created with a shared and common minimum agenda for with Tech for Transparency™.
- A shared database over blockchain could be created with live partial access to selected databases from various member nations to be created. Examples of shared database include defaulter's list, taxation, corporate ownership, bank details, etc.
- A global committee with its own working group could be created to monitor the project and implement it within a selected timeframe.

Potential Approach—Various Individual Nations:

- Various banks, digital/non-digital ID database of citizens, corporations could be linked to a common server with open API / blockchain.
- A necessary predicate in certain nations may be to digitize IDs and database.
- Connecting all banks in the country over shared digital platform.
- Taxation and other databases could be connected over blockchain to a national common server. In India for example, the government manages an entirely digitized registry termed the Automated Information Statement, which has overview of the entire range of transactions across banks, stocks, real- estate, and mutual funds associated with each individual's Aadhar and PAN numbers (similar to social security numbers in the US).

As many entrepreneurs say, if you build for India, you build for the world. India's example in investments across back-end digitalization reflects a strong model for redistributing capital for the common good (or a low-tolerance policy toward corruption). Public participation through an open-source software approach and inviting various other mobile app and firmware developers to add various end- point utility apps to the stack.

Study II—Investigative Reporting: Enhancing Speed of Data Access

The evolution of work practices among anticorruption investigative journalists from the 1990s onward is nothing less than revolutionary. The painstaking pace (and thrilling adventure) of data access experienced by investigative activist-journalists operating within the severe limitations of a non-digitized, data-siloed world up until the early 2000s bears little resemblance to today's deluge of readily accessible online data. It bears even less resemblance to the dawning era of Web 3.0 data governance in which data are gathered through IoT and robotic process automation (RPA) administrative solutions, recorded on interoperable blockchains and saved to decentralized databases, where they are monitored and curated using AI/ML tools.

Tech for Transparency™ is dedicated to ensuring that the potential of this data science and technology revolution is harnessed in the service of financial and fiscal transparency and the common global good. This objective can—and must—be achieved through a concerted worldwide effort that knows no national nor cultural boundaries, replicating and amplifying the outstanding work of leading activist groups.

Here we present firsthand experiences provided by two such groups, the investigative activist organization Global Witness, which was nominated for the 2003 Nobel Peace Prize for its work on "blood diamonds," followed by the nearly 200-person investigative activist shop, Organized Crime and Corruption Reporting Project (OCCRP), whose investigative data platform, OCCRP Aleph, now enables journalists to search over three billion records in cross-border collaborations to trace criminal activity.

Global Witness

By co-founder, Patrick Alley, whose anticorruption handbook and thrilling page-turner

Very Bad People was recently released.

Many of our investigations took place before the digital revolution existed or had become established. When we were investigating, for example, which shell companies may be involved in corruption, it was a really hard slog looking through various jurisdictions' company databases looking for links e.g. shared nominee directors, secretaries, common jurisdictions, dates of incorporation, etc.

It would have been immensely helpful to know whether a shell company we were interested in was also involved in some way in some other corruption case we were unaware of—the links between Israeli mining tycoon Dan Gertler's secretly owned companies used to

acquire mining rights in DRC, for example, and Gertler's links with the Och-Ziff hedge fund, which ultimately led to his being sanctioned.

The quality/accessibility of different jurisdictions' records vary, with many requiring a physical visit, so a high-quality, globally accessible database would have been invaluable.

Similarly, a database of secretly owned companies that have been involved in dodgy activity would have been really helpful. It could have been a first port of call in an investigation to see if anything was out there already.

Obviously, finding out who is behind anonymously owned companies has been key to much of our work. An enhanced capacity to track links between companies and individuals would have been invaluable—you'll remember the chapters No Safe Havens and An Odour of Sulphur from the Very Bad People book—it can take months, even years to get what we need.

With the latter, you may remember that the dead end in the Steinmetz case was a company called Global Special Opportunities Ltd. (GSOL). Last I heard, we still don't know who the person is behind that … although we have ideas.

Occasionally, we need to track financing of deals by banks and other financiers—beef companies in the Amazon, for example— and we now do this via outfits like TRASE. However, a capacity to see if secretly owned companies are seeking mega-finance might be a good indicator that some deal is in the air.

OCCRP
By co-founder, Paul Radu.

Coalitions of investigative journalists are a powerful global force in exposing large- scale crime and corruption. Indeed, collaborative journalism exposes the infrastructure that allows corrupt regimes, kleptocrats, and transnational criminal groups to operate with impunity at a massive scale.

ICIJ's Panama Papers and OCCRP's global laundromats have demonstrated that journalistic alliances working across borders and together with activists can greatly increase the efficiency of dogged investigative reporting. However, changes in global data systems and the fact that criminals are early tech adopters pose a new set of problems to the effectiveness of transnational cooperation among corruption hunters.

In the past two years, journalists and activists focused on "follow-the-money" reporting were overwhelmed by a flood of data in the form of both leaks and public databases. Independent media organizations lack the funds they need to process, analyze, and investigate the intersections of these datasets, impeding

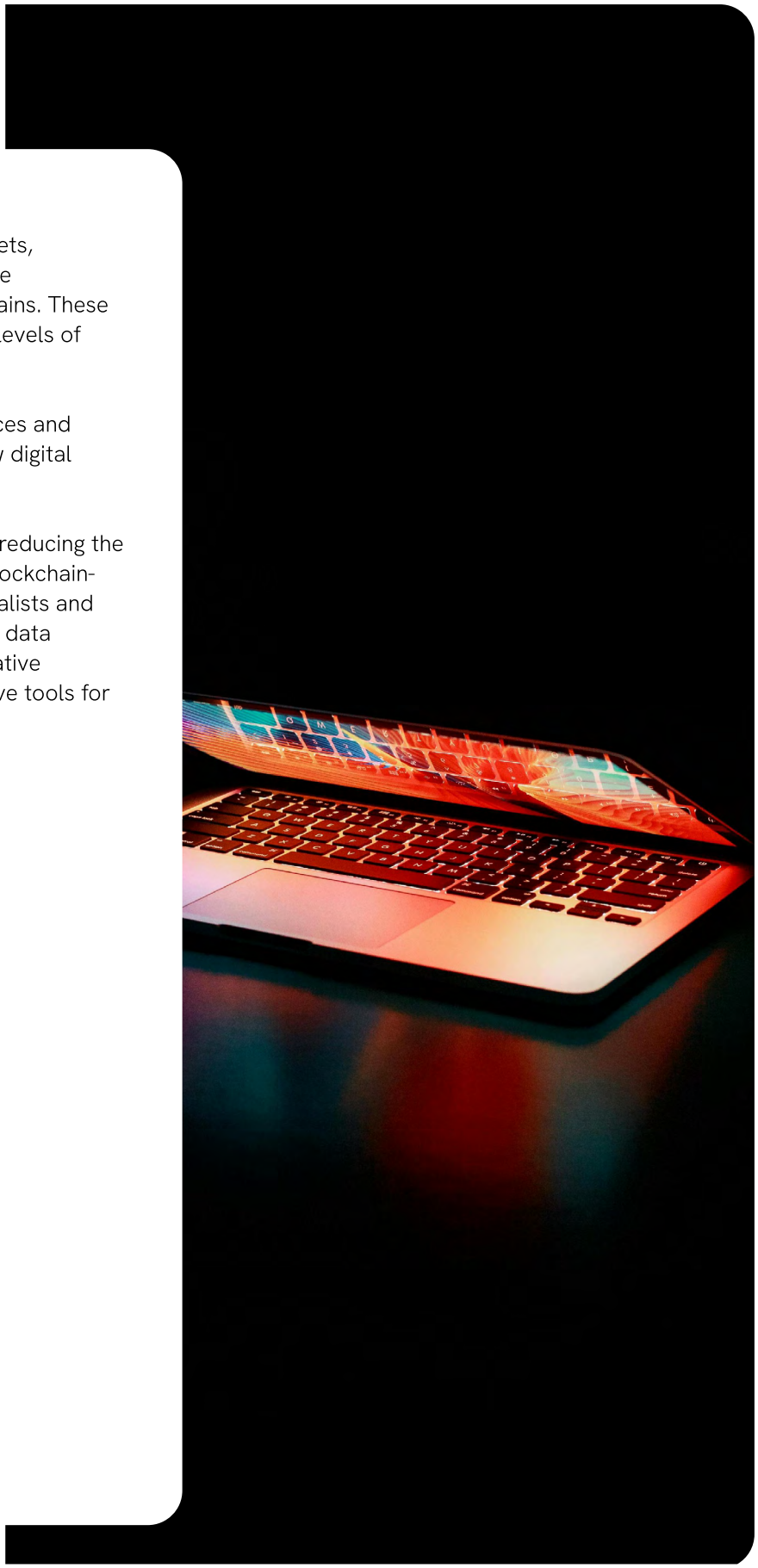
their collective capacity to bring global corruption stories to the public. Cloud computing and storage costs associated with these data are simply beyond their means. And the efforts to build global technological infrastructure to empower and enable investigative journalists are few and far between. Examples of such systems are OCCRP's data management platform aleph and ICIJ's Datashare.

Criminals and corrupt politicians who are early tech adopters have moved a sizable chunk of their

activities into digital realms: dark markets, cryptocurrency exchanges, ransomware operations, public and private blockchains. These new criminal strategies represent new levels of evasion.

Investigative groups need more resources and capacity to hunt out wrongdoing in new digital spaces.

These challenges can be overcome by reducing the cost of cloud computing, developing blockchain-related investigative skills among journalists and civil society, and scaling up the current data management systems used by investigative journalists, so they can become effective tools for activists and larger constituencies.





A Call to Collaborative Action

Scientists, Activists, Policymakers, and Unexpected Allies

In this paper, the Tech for TransparencyTM Workgroup invites a wide spectrum of stakeholders to collaborate on a handful of essential steps that have the strong potential to uncover the estimated US$ 50 trillion of wealth that is hidden from taxation authorities, law enforcement, and regulators across the globe.

Once fully implemented, the converging technologies discussed here will enable the nations of the world to recover up to half a trillion US dollars of dodged taxes every year. And we hope that, in doing so, these nations will earmark those revenues toward satisfaction of their obligations to contribute to the achievement of climate resilience and all of the UN SDGs. Because the SDGs and the UN Agenda 2030 represent a transnational public commitment to the wellbeing of this planet and its inhabitants.

We began this paper with an invitation to digital scientists, anticorruption activists, and policymakers to commit themselves to the marriage of transformative data science and transformative transparency. And now we encourage additional stakeholders to consider whether they may wish to join the collaboration. While some may find themselves on different sides of certain issues held dear by transparency activists, you may find upon reflection that there is a fair amount of common ground when it comes to the marriage of digital science and activism. Please consider the following stakeholder groups and their respective interests:

Private sector/Business community—Risk management has changed over the past decades. Information akin to beneficial ownership is increasingly important to protect supply chains and assess risks in market nations. For example, many multinational corporations are already lobbying for the digitalization of government in their market nations.

National security experts—Political leaders who are corrupt and threatening to regional stability use anonymity to hide financial relationships with weapons traffickers, private militias, and other supporters. The profits from secret investments can also fuel autocratic regimes that threaten to destabilize regional and world order. And secret finance undermines the ability to enforce sanctions against kleptocrats, arms dealers, terrorist organizations, and other nefarious world actors.

Labor rights organizations—Secret ownership frustrates the ability of workers to know with whom they are negotiating. Secrecy makes it difficult to track the source of the labor, allowing products made with exploited labor, such as the Uighur population in China, to reach markets in which they might otherwise be sanctioned.

Environmental organizations—Secret finance complicates efforts to prevent or identify bribes for access to sensitive land, trace the sources of raw materials, and monitor sustainability-related developments.

Faith-based organizations—Human rights concerns such as human trafficking and other forms of exploitation are of increasing importance to many of these communities. Digital identification of individuals can play an important role in finding responsible parties and allocating aid efforts.

We invite all of you—and those we've missed—to collaborate first on six specific solutions that will enable coordinated international efforts to shed

light on the hidden economy in the service of beneficial ownership transparency.

No. 1: Implement blockchain in every port and logistics transit point to ensure accuracy and integrity of global trade data

Misinvoicing of global trade—the essential step in trade-based money laundering and trade fraud—exceeds US$ 800 billion each year. Outright illicit financial trade is almost US$ 1.5 trillion per year.

This is a classic case of old-school data silos: There is currently no widely adopted system in place for the receiving port to positively confirm on a timely basis that the bill of lading presented to it is identical to the export manifest.
Misinvoicing is a criminal's tool for evasion of customs duties and VAT, for shifting profits into tax havens, and for money laundering.

A gap currently exists in trade data exchange between exporting countries and importing countries—the importing customs department has no reliable knowledge of the value of goods when they leave the exporting country.

This data gap is systematically exploited by bad actors who misrepresent the value of goods in order to evade customs duties and VAT and/or to shift profits into the hidden economy. This data gap also facilitates trade-based money laundering (TBML) and corruption of customs officials.

By promoting a new global norm requiring all ports to use blockchain technology (or another immutable distributed ledger solution that provides immediate and secure data exchange), the issues of trade fraud, tax evasion, TBML, and corruption can be better addressed.

Tech for Transparency™ proposes to make shipping its first major initiative. We call for concept notes from parties interested in participating in this effort —from the digital science perspective (development of a shipping-specific technological solution) and from the political perspective (promoting a new global norm requiring that all ports around the globe use distributed ledger technology).

No. 2: Harness the latest data science to strengthen and enhance national security

Beneficial ownership transparency is particularly important in government procurement processes, at the national, subnational, and local levels. The last thing a nation's defense department wants to do, for example, is engage with a defense contractor whose ties to an enemy combatant are not discoverable.

Similarly, infrastructure can be subject to sabotage. If a municipal water department engages a saboteur to modernize a water treatment plant, not being able to see past its innocent-appearing nominee "front man," the consequences could be catastrophic for the community.

The list of potential security threats—presented by an inability to see through to the ultimate beneficial owner at the top of an opaque and complex ownership structure—is long.

No. 3: Pursue transparency while safeguarding privacy

Privacy concerns can lead to slowdowns in cross-jurisdictional data sharing, allowing "catch me if you can" avoiders and evaders to remain always steps ahead of the regulators and tax administrators.

But the original anonymized nature of data recorded on a blockchain eliminates the privacy concern with government access to data, so the distributed ledger system ought to allow instantaneous cross-border data sharing among governments. At the data analytics and pattern recognition stage, AI/ML can operate with still-anonymous data (the beneficial owner's identity is unknown) to produce analytical results that are highly useful for policymakers developing laws to bring clarity to opaque financial flows.

Once a pattern of dubious activity has been identified, and the algorithm zeroes in on a particular set of transactions, law enforcement or tax authorities will have probable cause to suspect illicit activity by the anonymous individuals whose KYC, AML, CDD, and CFT information had originally been recorded on the blockchain(s) in question. At that point, a data de-anonymization mechanism can be used to suspend anonymity of the specific suspected bad actors represented by a blockchain address so that the investigation into the identified persons can be pursued appropriately. When the investigation and legal process are complete, the anonymity of identities can be restored.

In this way, the apparent tension between claims of privacy rights and the need to investigate specific bad actors is harmoniously resolved in the context of global sharing of BOT data among different nations' tax authorities, regulators, and law enforcement.

Privacy concerns can also block the public-interested power of investigative journalism. One solution to this problem—addressed in item No. 5 below, which calls for action to address economic barriers to data access faced by the public and by investigative journalists pursuing transparency and accountability—may be essentially an end-run around the privacy problem: once journalists have financially reasonable access to, and experience with, anonymized blockchain-based data, they will be in a position to employ AI/ML tools to triangulate the anonymized data with big data and other public data sources to identify specific bad actors. Alternatively, media professionals could productively turn their work over to government investigators with the authority to de- anonymize the data at that stage.

No. 4: Assure the quality of data in legal entity and beneficial ownership registries from the point of input to the end of the data journey

KYC and CDD mandates—requiring, for example, a bank to obtain from a prospective customer accurate identifying information about the ultimate beneficial owners of a company that seeks to open an account—aim to capture this information accurately and record it on a blockchain.
But what if the human intermediary (the bank teller, for example) is asleep at the switch, and happily enters into the system that Mickey Mouse owns 30 percent of the company?

The practical obstacle at the point of input is that human gatekeepers may or may not compromise data (or accept inaccurate data). The solution is to eliminate the "middleman," a task that can be addressed only by technology.
AI/ML tools enable triangulation of the collected data with big data and other sources to significantly improve data quality at the point of input—using mechanisms like those that instantaneously block an online purchase if a consumer enters credit card information that is expired or does not match his or her name, IP address, or other identifying details.

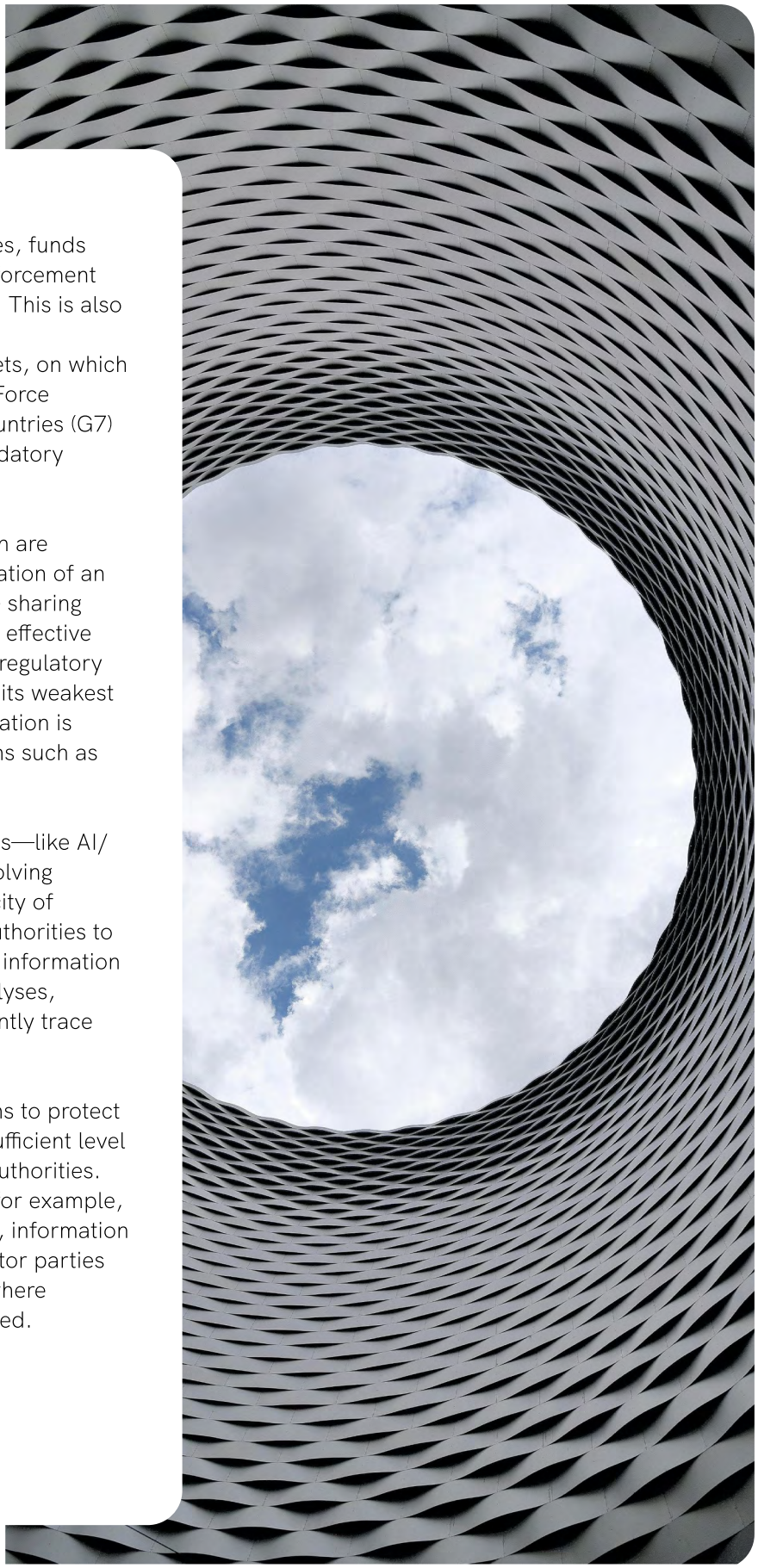
Blockchain takes care of the quality for the rest of the data journey, for the beauty of the distributed ledger system (the foundation of blockchain technology) is that no trust is required between parties. Once recorded on a blockchain, data become immutable.

No. 5: Address economic barriers to data access faced by the public and investigative journalists pursuing transparency and accountability

There are significant financial barriers faced by investigative journalists, who lack the resources they need to pursue scofflaws and expose wrongdoing. We must reduce the cost of cloud computing, develop blockchain-related investigative skills among journalists and civil society, and scale up current data management systems used by investigative journalists, so they can become effective tools for activists and larger constituencies.

No. 6: Promote sharing and syncing of data across public and private platforms

Financial intelligence is a powerful tool to combat



crime as well as corruption. Many times, funds leave footprints that dedicated law enforcement agencies have the capabilities to trace. This is also relevant regarding certain activities in cryptocurrencies and other digital assets, on which the FATF—The Financial Action Task Force established by the Group of Seven Countries (G7)—has recently imposed its global mandatory standards.

International response and cooperation are essential in this space. The implementation of an instantaneous cross-border BOT data- sharing regime by all countries in a unified and effective manner is crucial to the elimination of regulatory arbitrage—a chain is only as strong as its weakest link. In addition, international collaboration is required, including among organizations such as Interpol and the Egmont Group.

The adoption of advanced technologies—like AI/ML tools—is a must. These rapidly evolving technologies are essential to the capacity of private-sector and law enforcement authorities to effectively identify and detect relevant information and, in turn, to conduct enhanced analyses, identify suspicious patterns and efficiently trace funds.

Technology can also offer new solutions to protect customers' privacy, while allowing a sufficient level of transparency for law enforcement authorities. Zero-knowledge- proof mechanisms, for example, may be particularly helpful. In general, information sharing across private- and public-sector parties should be the norm, with exceptions where legitimate privacy concerns are identified.

It’s Time to Act

To sum up: It is in a spirit of inclusion and cooperation based on common interests that we issue this global call to action—a call to the vast plurality of stakeholders who recognize the urgent need to shine a bright light into the murky depths of the hidden economy. The formidable power of this initiative is the intersection of individual and regional interests, on the one hand, and the collective interests of humankind in global compliance to fair and transparent financial and fiscal standards, on the other hand. Governments of functioning democracies have long tolerated and even encouraged the glaring injustice of opaque and/or illicit financial flows of US$ 50 trillion, representing an estimated US$ 500 billion in lost taxes annually, as necessary for financial “efficiency.”



This must stop. The Byzantine complexity of a global financial system that benefits the wealthy few at the expense of the world population never has been, nor ever will be, efficient. As the world faces the 3- fold crisis of conflict, corruption, and climate change, it is time to leverage the unprecedented potential of emerging technologies in the service of beneficial ownership transparency —to harvest previously forsaken tax revenues and channel them toward funding efforts to benefit our planet and its people.



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6. Members of the Tech for Transparency™ Workgroup are listed in the “Authors and Contributors” section at the conclusion of this position paper.

7. Members of the Tech for Transparency™ Workgroup are listed in the “Authors and Contributors” section at the conclusion of this position paper.

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Chapter 2

Capital for the Common Good

Satya Brata Das, Stephan Pouyat, David P. Main, Oluneye Oluwole, Navroop Sahdev, Ranjani Sridharan, and Rogerio Studart





Channelling capital to serve the United Nations Sustainable Development Goals and the planetary agenda of the G20 group of nations.

Healing A Broken World

Executive Summary

Capital for the Common Good introduces the concept of Sustainable Capital Goals (SCGs) to serve the UN Sustainable Development Goals (SDGs).

The Digital Economist calls for redirecting capital flows to create real value for societies in the form of goods and services rather than to generate revenue through purely financial instruments. In addition, we advocate preferential allocation of capital to sustainable investment opportunities — above all, those that can help ensure a livable future in the face of the growing climate crisis. Beyond defining the SCGs themselves, we recommend the development of a new Crossborder Financial Backbone led and supported by governments of the Global South, to ensure that sustainable capital is deployed to flow from the "closed loop" of the Global North to meet the urgent needs of the Global South. The Digital Economist proposes to help capital flow in the path of least resistance. Capital for the Common Good recommends not just a new Crossborder Financial Backbone, but also a shift toward real-time data and international issuance standards.

Real-time data are key to identifying risks in financial institutions and markets, yet financial issuance is currently not fully automated and carries significant market risks. These are not sufficiently anticipatable, as evidenced by the recent meltdown of the Silicon Valley Bank.

By agreeing on common international issuance standards, and using new technologies, like ACTUS and the ISDA CDM it is possible to fully automate the flow from issuance origination to asset owners, where we can now move from natural language contract description to fully automated, executable and verifiable contracts, which provide greater regulatory transparency.

Automation also enhances accessibility of issuance by reducing costs, and enables wider participation in financial markets.

Greater inclusivity and transparency can also promote greater sustainable investment in capital markets, aligned with ESG objectives and UN Sustainable Development Goals. In this paper, we discuss the journey to a common inclusive automated real-time issuance platform and the benefits it brings to treasury, capital markets, business and society.

The Digital Economist is a pioneer at the new frontiers of economics—a digital, human-centred convener and converter, navigator and guide.

We are trusted advisors to governments and international institutions. Leaders rely on us for support with policy, strategy, advocacy and diplomacy.

Throughout these activities, we are committed to accelerating the delivery of the UN Sustainable Development Goals, fulfilling humankind's common promise to itself.

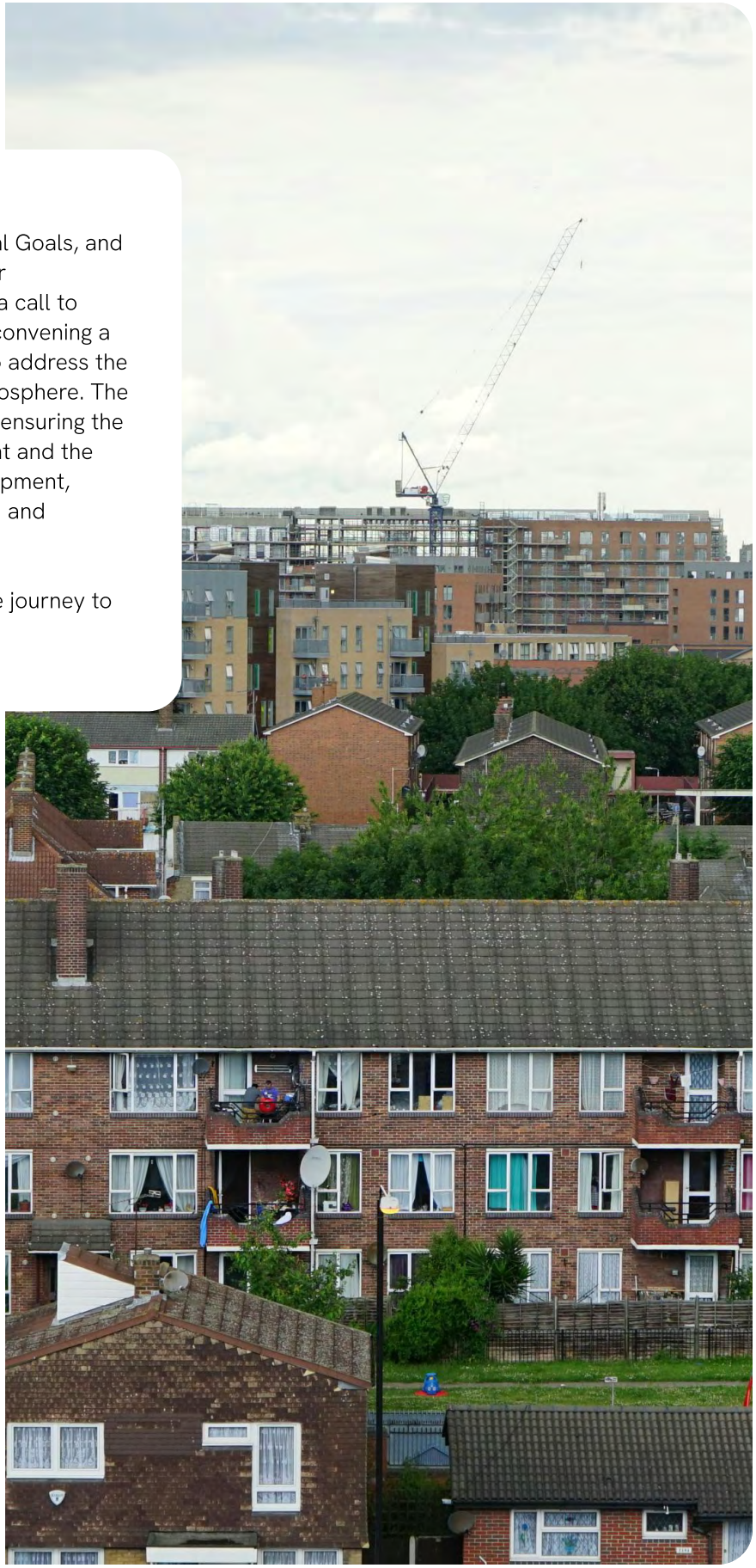
Our impact ecosystem includes:

- A think tank
- A strategic advisory team
- A robust international network of partners and collaborators (including the World Bank and UN agencies)
- Digital tools for convening and deploying capital

We have been mandated to convene capital for human-centred projects ranging up to US$ 125 billion, with a focus on emerging markets and the Global South.

As we introduce the Sustainable Capital Goals, and the means to achieve them with greater transparency and ease, we are issuing a call to action. We are asking you to join us in convening a community with a common purpose, to address the urgent needs of our species and our biosphere. The Digital Economist is fully committed to ensuring the Global South can access the investment and the capital it needs to fund societal development, including climate adaptation, mitigation and resilience.

We urge and invite you to join us on the journey to better human and planetary outcomes.





Setting the Scene

The world needs an effective response to a triple planetary crisis—climate emergency, biodiversity loss, pollution—which threatens the future of the planet.

This is compounded by the confluence of the climate crisis with corruption and conflict. We are not owners of the Earth—we are simply borrowing the planet from future generations. Our burning platform is the threat to the lives of our children, our grandchildren and their children.

Capital, which looks for certainty and stability, now faces the reality that there is no such thing as "normal." What was predictable and reliable in the past may no longer apply. Geopolitical risks and the extreme manifestations of climate change can undermine the best-laid plans for stable investment and higher returns.
These unprecedented challenges mean that traditional capital allocation strategies may no longer be effective in generating wealth for countries and households.
Though this new reality requires a more flexible and nuanced approach to investment and financial planning, those who are able to identify and achieve Sustainable Capital Goals (SCGs) stand to create significant wealth.

Economic decisions and capital flows that seek to pursue the certainty of yesterday are ill-equipped to navigate the capricious and arbitrary phenomena that threaten previously deployed capital and new investments alike.

Significant barriers remain in the structure of global finance. The dominant harbor for capital is titled investments—bonds, securities, tokens and similar instruments based primarily on tangible physical assets.

Any investments in climate resilience, such as food security, zero-emission mobility, or climate resilient infrastructure, need to be structured to fit this dominant reality in capital flow.

The profusion of intermediaries and the capital needed to fund innovative transformation (e.g. start-ups, climate infrastructure, existing enterprises) creates a hindrance to the smooth and effective alignment of resources with opportunity.

In *Capital for the Common Good*, a distinguished workgroup convened by The Digital Economist considers how capital can be optimally deployed to meet our existential crises, while also ensuring that there will be a viable future for the value created by today's investments.

Our signal concept, further elaborated in this paper, is defined as achieving Sustainable Capital Goals. Sustainable Capital will ensure and accelerate the achievement of the United Nations Sustainable Development Goals, leading to a sustainable future for humankind.

The alternative is a future of flux, turmoil and instability: the opposite of the stability and predictability capital seeks. The prospect of chaos and violence becomes all the more likely as climate refugees, war refugees and refugees from corrupt governance overwhelm efforts at controlled and predictable migration.



The Thinking Behind This Work

Building on The Digital Economist's published work on leadership, this paper offers a sweeping examination of how we can find an actionable path forward for our biosphere and all who exist in it. What we call for is a fundamental reset

In researching and writing this paper, we have drawn on the work of Thomas Piketti on the role of capital in stable economies and societies as well as that of Barbara Henderson on the urgently needed overhaul of capitalism (Reimagining Capitalism in a World on Fire Henderson 2020). Additional sources of knowledge and inspiration include Nassim Nicholas Taleb's work on antifragility (Antifragile: Things That Gain from Disorder Taleb et al. 2012), Eleanor Ostrom's work on governing the commons, Jean-Jacques Rousseau's evocation of the Common Good. Above all, we looked to the Kouroukan Fouga—the world's first governing constitution advancing gender equity and human rights as the normative framework of everyday life. This remarkable constitution emerged in West Africa in the thirteenth century of the Common Era.

Capital feeding on capital to generate capital within a closed loop, creating neither jobs nor improvement to quality of life in the form of goods and services, is inherently inequitable and unstable.

Leadership without a moral compass will inevitably lead to systemic disadvantages and hinder the creation of wealth in less developed countries. In contrast, leadership that practices humility, ethics and adaptability to ever-changing conditions coupled with a focus on the best use of capital leads to an abundant and thriving global community.

In other words, "business as usual" will inevitably lead to upheaval and uncertainty that imperil all forms of capital—fiscal, natural, human and spiritual—because current capital deployment is focused on short-term gains and extraction of natural resources.

When tens of millions of young people joined the global climate protests that began on March 15, 2019, demonstrating on the streets in numerous countries, their message was clear and simple: follow the science.

Climate science predicts that a warming planet will disrupt everything we consider "normal" and continue to unleash chaos.

The natural sciences tell us it is futile to dwell on whether calamitous climatic change is part of a natural cycle or anthropogenic: it is here, and we must adapt and mitigate to ensure the biosphere remains capable of supporting abundant life.

Political science predicts that conflict stemming from natural resource destruction and resource wars will continue to spread misery and devastation, and severely limit the scope for "safe" capital investments.

Economic science tells us that gross imbalances in the concentration of wealth deprive economies of the fuel needed to achieve full productive capacity and grow middle classes equipped with the disposable wealth to allow spending beyond mere necessities.

Social science tells us, echoing Gandhi, that poverty itself is the most pervasive form of violence. Entrenched poverty frays the social fabric and provokes even more instability and violence, leaving few "safe harbors" for capital to grow and flourish.

So we at The Digital Economist are listening to those 2019 protesters and stand with the billions who will inherit a world they consider broken.

While it may be broken, it is not irreparable. Through repair, we can strive toward regeneration.

Below are three examples of critical focal points for the sustainable deployment of capital:

- Food security: Using controlled environment agriculture to grow food abundantly in urban centers, deserts and other areas where there is no arable land to ensure food security for all. Advanced aeroponic technology feeds crops grown vertically indoors, with a nutrient mist responding to the needs of the plants. It uses a fraction of the water of land-based agriculture and indoor hydroponics, and has up to five times the canopy yield of horizontally grown crops.

- Sustainable mobility: Investing in both final-stage research and development and market-ready technology in all forms of travel and transport is crucial to achieving sustainable mobility. Concerted capital investment in sustainable mining of rare earths, semiconductor manufacture and public charging infrastructure fuelled by renewable electricity are all key areas of investment for passenger and freight movement.

- Climate resilient infrastructure: Building the significant public works needed to protect areas threatened by climate emergency, and making new construction, infrastructure and buildings fully sustainable is essential in creating climate resilient infrastructure

To change the status quo, we must first develop an open mind. It will require us to be receiving, understanding and willing to work. This can begin with a few people, but to make it happen, we need to shift the mindsets of entire societies the world over. To realize this, education is a prerequisite. Our traditional formal education system supported and partly created an unsustainable growth-based economy. Now, education must teach sustainable development through compassion and inclusion as core values that reflect long-term thinking. Education in sustainability must be a part of sustainable deployment of capital. The role of education in transforming mindsets is crucial, and formal schooling is the largest and longest training ground.

Capital needs to be allocated toward making education a two-step process:

1. Raise the consciousness of societies regarding the gravity of climate crises, corruption and conflict to foster a cognitive and emotional shift toward sustainable values, capital deployment and lifestyle.

2. Equip societies with the needed actionable tools to contribute to a sustainable lifestyle in balance with earth.





The Challenge and Opportunity

The Opportunity

The period 2022-24 offers the most promising opportunity, through the agendas of the G20 Group, to accelerate the achievement of the SDGs by using Sustainable Capital Goals.

From the 2022 Indonesian presidency of the G20, the 2023 Indian presidency, and the 2024 Brazilian presidency, there is an unprecedented convergence of three of the largest democracies and economies of the Global South—and an opportunity to offer actionable paths forward toward a just and inclusive future for humankind.

The Challenge

With the lived experience of extremes in weather that affect every part of the planet, a critical mass of human awareness is forming around the strophe, or turning point. Our collective action in the next two decades will determine whether this strophe becomes a catastrophe, a point of no return for our biosphere and all life forms that inhabit it.

This observation in our 2022 paper Our Duty of Care led us to call for a new social contract for our times: to converge and concentrate a truly global effort to implement mitigation, adaptation and climate resilience. This must include the private sector, which has come to see sustainability as a significant value-creation opportunity, especially when aligned with the UN Sustainable Development Goals.

To reach the United Nations Sustainable Development Goals, we are invoking Sustainable Capital Goals, the catalyst that will open the most promising paths to a sustainable and inclusive future that leaves none behind. And in an age where artificial intelligence and machine learning are transforming the nature of work, we must ensure that those wishing to work can do so with meaning and purpose—sustainable labor is an integral part of this evolution.

This is an endeavor that must include everyone, particularly the investors and capital pools already committed to funding climate resilience. These parties are already leading the energy transition and decarbonization as well as technologies and installations to pursue net-zero economies.

Robust public-private partnerships will be needed to overcome the limits of international consensus that result in disappointment at each COP summit as well as the constraints faced by private capital, which requires a predictable path charted by rule of law to govern investment.

The keepers of global financial flows, particularly in capital markets, face a recurring question: how can capital flow securely and predictably in a world of millisecond trading and creative financial instruments with no direct attachment to real-world value creation.

Further, institutional asset owners, with control of the largest pools of capital, anticipate that stagflation, high interest rates and mounting national debts will impact risk/return profiles of traditional responsible investments. These keepers have an increasingly clear understanding that climate change is an existential risk for humanity and are aware of the climate risks for their business. Moving their portfolios toward sustainable and climate resilient assets is not only the right thing to do, but a business decision that is expected from any responsible leader in the financial sector.

The confluence of planetary crises makes it challenging for capital to find safe passage, let alone safe harbor. Especially when capital itself

continues to be deployed in the unsustainable patterns of the past.

Yet if we can navigate through these perils, there is a destination promising robust and resilient creation of both value and wealth. There is significant evidence that the path to low-carbon economic systems requires investments that can expand growth, create better jobs, guarantee high and sustained profitability and a more sustainable and just planet.

The Digital Economist believes there is still time to change the course of these capital flows and divert them to uses that have positive impact. Intentionality sits at the heart of now well-established yet somewhat nascent investment allocations to impact investing and ESG (environmental, social and governance) aligned investing.



	Financial-only	Responsible	Sustainable	Impact			Impact-only
	Delivering competitive financial returns						
		Mitigating Environmental, Social and Governance (ESG) risks					
			Pursuing Environmental, Social and Governance opportunities				
				Focusing on measurable high-impact solutions			
Focus:	Limited or no regard for environmental, social or governance (ESG) practices	Mitigate risky ESG practices in order to protect value	Adopt progressive ESG practices that may enhance value	Address societal challenges that generate competitive financial returns for investors	Address societal challenges where returns are as yet unproven	Address societal challenges that require a below-market financial return for investors	Address societal challenges that cannot generate a financial return for investors
Examples:		• PE firm integrating ESG risks into investment analysis • Ethically-screened investment fund	•"Best-in-class" SRI fund • Long-only public equity fund using deep integration of ESG to create additional value	• Publicly-listed fund dedicated to renewable energy projects (e.g. a wind farm) • Microfinance structured debt fund (e.g. loans to microfinance banks)	• Social Impact Bonds / Development Impact Bonds	• Fund providing quasi equity or unsecured debt to social enterprises or charities	

Source: Spectrum of Capital by Bridges Fund Management

After all, capital is just a tool. The intent with which it is deployed makes the difference between a future of chaos, and one in which we summon the will and resolve to offer hope and scope to future generations. Economic decisions and capital flows that pursue the certainty of yesterday are ill-equipped to navigate today's capricious and arbitrary phenomena.

Less than fifteen years after the subprime meltdown and subsequent financial and economic crisis, our traditional financial sector has been imperiled by something as mundane as interest rate exposure in one relatively small regional bank.

Economic theory suggests that capital flows to the highest valued usage, or value-added. This holds true whether the value-added results from production of
goods and services or from purely financial activities like trading financial instruments or accruing interest. As Thomas Picketti illustrates with many examples in capital for the twenty-first century, the history of such deployment indicates that economies in which capital gravitates toward higher returns in goods and services are more stable than those in which purely financial instruments offer better returns. Capital feeding off capital to generate more capital is an inherently unstable system.

Significant barriers remain in the structure of global finance. The dominant harbor for capital is titled investments—bonds, securities and similar instruments based primarily on tangible physical assets. Any investments in climate resilience, whether food security, zero-emission mobility or climate resilient infrastructure, need to be structured in new ways (blended finance vehicles and emerging financial products) to align both with existing asset allocation methodologies as well as offer a path to a more sustainable future.

Countering climate change and social inequality also require changes in infrastructure and logistics. The question is then, how to finance tangible assets that address both issues, rather than invest in those that exacerbate them.

A more effective path needs a focus on the core problems of the support systems of banking transactions—and more specifically, on cross-border financial market infrastructures. This backbone represents more than a quarter of the global capital market ecosystem, approximately $50 trillion. Enhancing this infrastructure by adding elements that foster greater stability and transparency, while also easing capital flows toward sustainability is discussed in further detail in the following section.

Finding Practical and Actionable Solutions

The recent financial disruptions, like many of those in the last half century, expose serious shortcomings in the good functioning of cross-border finance, despite robust financial regulation. Why is that so? In retrospect, the lack of timely granular data reported in a data standard capable of supporting current and forward-looking financial analysis contributed much to the crises.

Over time, the very well designed and robust monolithic cross-border backbone created in the 1960s has unfortunately transformed itself into a complex, opaque and suboptimal ecosystem. Many of the eminent figures in G20 would be the first to recognize that everyone who is close to the field recognizes that this system thwarts regulators' ability to optimally monitor the financial world in real time.

Data used by regulators look back to what has transpired, while risk demands data that look forward. Relying on static data impedes our ability to assess and manage risk, which by nature is dynamic and volatile. Our traditional finance ecosystem lacks the capacity to process real-time data, with the result that important information is

lost in translation, especially at the edge of interconnectedness of financial firms. FinTechs and the innovative applications of emerging technologies can offer several useful tools, but these tools don't often find their way to governance applications, perhaps due to lack of visibility. This adds up to prima facie evidence that the current analytic tools in finance, risk, and regulation lack the robustness to protect our diligent collective efforts in past decades to strengthen the financial industry.

Financial platforms decide much of what happens in the international arena, and these are plagued by imbalance, because the Global South is inadequately represented. By purchasing power, China and India are two of the world's three largest economies, with the United States in second place. That can change. But it won't happen by itself.

We propose a new financial world order through a Cross-Border Financial Backbone convened and supported by governments in the Global South.

The current socio-economic inequities and imbalances are evidence that the current global financial system has systematically replicated the structures of exploitation that existed in the colonial era, and the Global South has so far not resisted. Together, we can define a new and better path. This will benefit all parties and render the international financial ecosystems more robust and resilient.

International financial architecture depends on central securities depositories. These:

- Allow the registration and safekeeping of securities
- Enable the settlement of securities in exchange for cash
- Track how many securities have been issued and by whom
- Trace each change in the ownership of these securities

Any transaction in securities must be followed by a post-trade flow of processes. These processes lead to the settlement of the trade, which means the delivery of securities to the buyer against the delivery of cash to the seller. There is no direct connection between the issuer of the securities and the buyer, with transactions flowing through intermediaries. Another aspect to be considered is the absence of real-time financial data on the status and performance of the securities.

There are now only two international central securities depositories (ICSDs), international financial market infrastructures that facilitate the exchange of securities among international investors across jurisdictions. These are Euroclear bank, a Belgium-based financial services company and Clearstream Bank, a Luxembourg-based financial services company owned by the German Stock Exchange, covering around US$ 50 trillion and growing. There is ample room to enhance the market infrastructure, so that it is no longer a hegemony. We have the opportunity to make it more inclusive and open, especially if it is supported by the governments of the Global South.

In essence, this hegemony impedes the flow of capital to the Global South, since it does not include all emerging markets.
Yet for the economies of the Global South, there is little choice other than to use the two existing ICSDs as safe harbor for capital. To be clear, it's not just the G20 and India—the world's largest democracy and a country with breathtaking economic growth—that rely on the current international financial system.

Oil-rich nations like Saudi Arabia and the Emirates do the same thing. And it's understandable, because the perceived returns look as if they were the best available option those countries have. In fact, any alternative coming from the Global South is cleverly crafted to make it a nonviable alternative. Yet at The Digital Economist we have the means to create alternative venues.

There is a compelling argument made by Mark Carney, co-chair of the G30 Group of Economists, that these established patterns of capital flow in the international financial system are a barrier to optimal investment in climate adaptation, mitigation and resilience.

A new and truly open multilateral market utility owned and governed by member states—as is being convened by India in rallying the Global South into an economic collaboration—can change the game. A new Cross-Border Financial Backbone developed and supported by member governments would be a logical continuation of this cooperative leadership in the Global South. Such a platform can foster resilience and robustness as well as fairness and liberation from this modern form of financial dependence.

The Digital Economist further believes it is essential for all regulators to shock-proof the global financial system with real-time knowledge of the interdependencies between financial institutions and their counterparty risks.

Open-source standards already exist. ACTUS (a "Liaison A" of ISO TC68), for example, enhances visibility and predictability, while Common Domain Module (CDM) is a standardised, machine-readable and machine-executable data and process model. These systems accelerate the adaptation and incorporation of distributed ledger, smart contracts, cloud computing and artificial intelligence into financial ecosystems.

Such sharable technology will serve as a powerful tool in avoiding future shocks.

International standards have proven to be extremely useful in safeguarding the US$ 50 trillion cross-border assets held by central banks, sovereign wealth funds and quasi-government entities. This new digital infrastructure will also open up new opportunities for the private sector.

These digital advances will be fully compatible with the existing international financial market infrastructure. The big shift is that they will allow a fully automated uploading of the prospectus in the existing databases, which is critical for day-to-day operations of intermediaries.

The International Swaps and Derivatives Association (ISDA) notes that the common domain is a "standardised, machine-readable and machine-executable blueprint for how financial products are traded and managed across the transaction lifecycle."

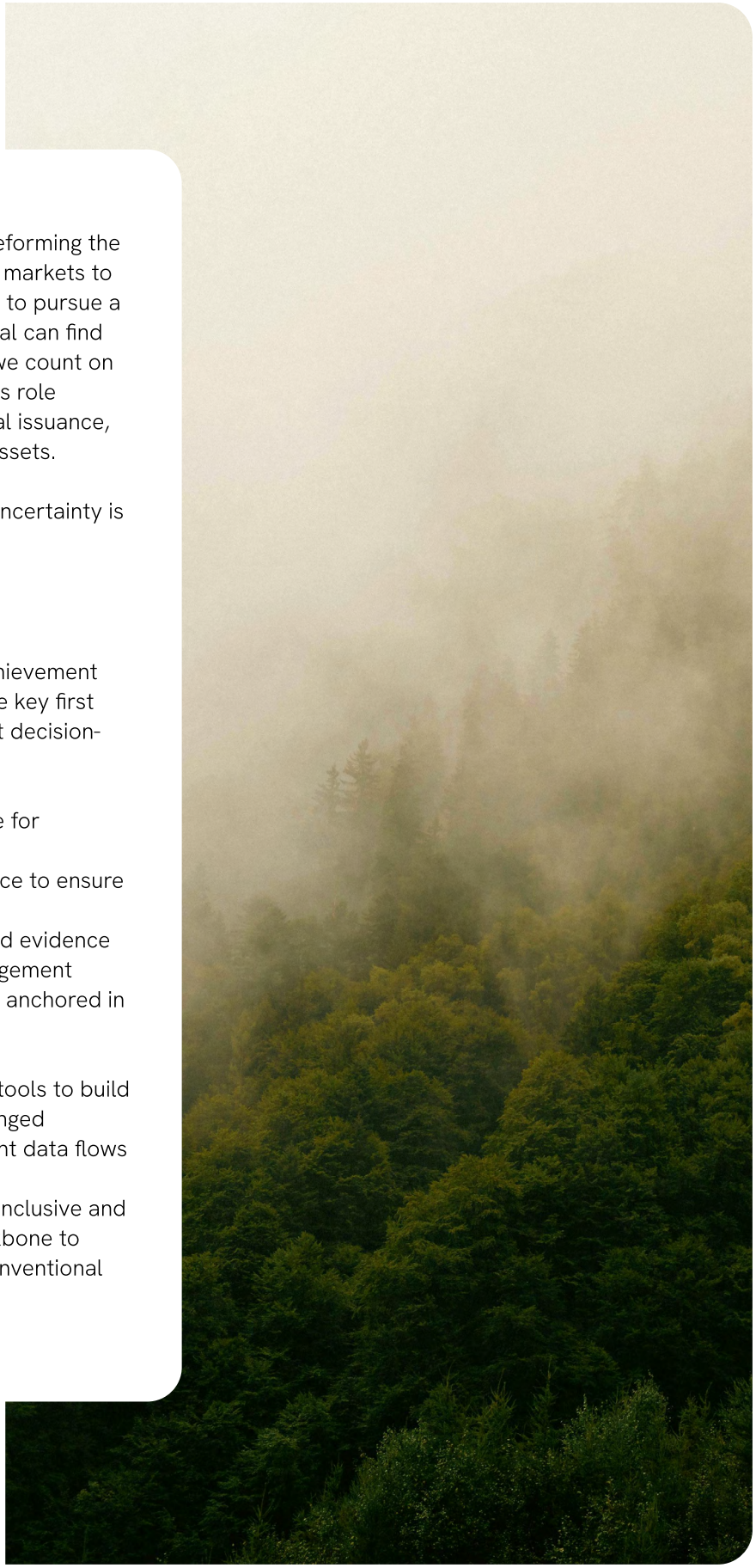
Such digital technologies enhance transparency and alignment between regulators and market participants, enabling consistency in regulatory reporting. They do so by providing a standard representation of trade data and supporting machine executable reporting requirements.

This means regulators can rely on granular, structured, fully transparent, real-time and dynamic forward-looking data, which they can examine with effective and efficient analytical tools.

What Comes Next: A New Path for Global Capital

The Digital Economist believes that as we seek to steer capital toward investment opportunities that support a sustainable future, we must consider the power of digital science, digital tools, data science and their true potential for the benefit of humanity in:

- More efficient capital allocation
- Largely automated securitization of large portfolios of SME debt to provide working capital to enterprises and initiatives in emerging economies
- Incentivization of the massive capital pools, e.g. through streamlined and standardized ESG asset rating, to facilitate investment in renewable technologies



Digital tools can be transformative in reforming the infrastructure of cross-border financial markets to ensure that those with innovative ideas to pursue a sustainable future and those with capital can find each other efficiently. To achieve this, we count on governments to lead the way and act as role models in defining the path to full digital issuance, starting from their own $30 trillion of assets.

This is our best hope in an age where uncertainty is the only certainty.

Some Steps to Begin

Sustainable Capital Goals and their achievement through digital technology require some key first steps. Accordingly, we recommend that decision- and policymakers:

1. Regain focus on a sustainable future for everyone
2. Rethink and rewrite economic science to ensure it works for everyone
3. Base policymaking on bias-corrected evidence and outcome-driven program management
4. Establish new development models anchored in enablement, not aid or trade
5. Use culture as a way of healing
6. Empower generalist inventors with tools to build cross-subject solutions to multi-pronged problems, with open and transparent data flows and access to information
7. Build a new, complementary, more inclusive and modern cross-border financial backbone to cater for the ones left behind by conventional financial flows



Capital at the Confluence of Climate Crisis, Corruption, and Conflict

On March 15, 2019, an extraordinary event unfolded the world over, startling evidence of the difference that one ordinary person can make in the world.

All across the world, in nearly one hundred countries, millions of children left their classrooms to join a "strike," demanding meaningful action to address catastrophic climate change.

Within six months, what began as a solitary act of silent protest by a reserved and plain-spoken Swedish child became a global movement. It was inspired by Greta Thunberg, then age fifteen, who spoke that day at a rally in Stockholm—one among the two thousand gatherings in communities spanning the globe.

"We have only been born into this world, we are going to have to live with this crisis our whole lives. So will our children and grandchildren and coming generations," Thunberg said. "We are not going to accept this. We are striking because we want a future and we are going to carry on."

The young people lead where adults dared not venture in responding to climate change. All the demonstrations were organized using digital tools. In Singapore, with its strictures against public assembly, the rally is a virtual one, held in real time on social media platforms.

And as it had since Greta's movement began, the movement was fuelled by a simple act of defying authority: skipping school on Fridays to demand action on climate change with three simple words: Follow. The. Science.

Since Greta's act of civil disobedience began thirty weeks before the March 2019 protests, students had been skipping school on Fridays to spur action. The March 15 rallies are the biggest global event yet, timed to coincide with the end of the five-day United Nations Environmental Assembly in Nairobi.

And well-meaning though the summit was, one could see why the young are frustrated. The final communique was a masterful exercise in recognizing the obvious and promising in elegant diplomatic language to, "uh…do…er…something, you know?"

The dead giveaway is that the summit'S resolutions were non-binding.

Greta's generation understands far better than its elders what we face. "Climate change is worse than Voldemort," declared one rally poster in Wellington, New Zealand. The trouble is that many of the adults who run the world have no idea what that means.

The scientists, however, do. The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change. In its October 2018 status report, it amplified the conclusions and warnings of previous ones.

Every subsequent report since has done the same: while our capacity for effective action remains elusive.

To put it in plain language, we have between two to three decades—at which point Greta and her peers will have barely reached middle age—to achieve net-zero emissions of carbon dioxide before the planet becomes unsustainable for human life as we know it.

The tragedy is that we've known so for decades. The intensity of climate change has become ever-more prominent since that momentous day in November 1989, when the British Prime Minister of the day, Margaret Thatcher, aroused the United Nations with an urgent call for action to avert climate catastrophe.

"What we are now doing to the world, by degrading the land surfaces, by polluting the waters and by adding greenhouse gases to the air at an unprecedented rate—all this is new in the experience of the earth. It is mankind and his activities which are changing the environment of our planet in damaging and dangerous ways."

Margaret Thatcher's ardent conservatism was founded upon the word "conserve": proper preservation and stewardship of all we have and are, tending our patrimony for the benefit of generations yet to come. And as the only scientist among the world leaders of the day—she read chemistry at Somerville College, Oxford, and worked as a research scientist before turning to law and then politics—she was keenly aware of the perils of anthropogenic climate change.

Since her warning, carbon emissions have continued to grow well beyond the 1990 emission levels that were set as an international benchmark.

Emerging from the COVID-19 pandemic, the world awoke to a future of constant flux. The pandemic brought a hard stop to the global economy. The money central banks printed to stave off economic disaster brought a reckoning in inflation and erosion of value.

Russia's February 2022 full-scale invasion of Ukraine, and the subsequent geopolitical turmoil, accelerated the confluence of the existential crises facing humankind: the corrosive confluence of climate emergency, corruption, and climate.

The polarity between rich and poor, the threatened impoverishment of what had been the middle class in the Global North and more particularly in the Global South, seems to be hardening the tribal resolve between the haves and have-nots.

We emphasize that wealth goes beyond traditional financial and economic metrics to include overall wellbeing and quality of life. This can be measured by various indicators like life expectancy, access to healthcare, education, employment opportunities, social support networks and overall standard of living. In addition, non-human stakeholders such as the flora and fauna of the planet, its oceans and atmosphere are also assets that enhance overall wealth. When deploying capital, it is essential to think about how it can affect each of these aspects positively.

At the turn of the millennium, the power and potential of beneficial capital flows and barrier-free trade was erasing boundaries between nation-states, promising a new era of value creation. Yet as the twenty-first century continues to unfold, cultures and societies are erecting new barriers—not just around their nations, but around their tribes: the communities of like-minded people driven by the social media algorithms of the digital age.

Within this reality, public- and private-sector stakeholders around the world have so far failed to coalesce in a comprehensively effective and well-funded effort to sustain inclusive societal development and climate resilience with a particular focus on the most vulnerable.

As our team at The Digital Economist wrote in our 2022 Report, Meeting the Climate Challenge, the well-intentioned measures adopted during the annual UN climate meetings remain unfulfilled. And sincere pledges made in international fora inevitably run aground on the hazardous rocks of domestic politics and the narrative-changing pull of geopolitics.

This is one of the reasons we called for a new social contract (in the chapter Our Duty of Care) to

meet the climate emergency, based on our 6-D vision for sustainability (in the Chapter Finding Common Ground). And while we believe there is much actionable potential in applying our 6-D lens (Dignity, Development and nuclear Disarmament as a foundation for Decarbonisation, Decentralisation and Digitisation), we are keenly aware that a much more concerted effort is needed to ensure steady capital flows for sustainability.

Sincere pleas are not enough. As the anguished eloquence of UN Secretary General Antonio Guterres continues to fall on deaf ears, it becomes ever-more evident that capital—agnostic in seeking a profitable return—must be given compelling reasons to invest in sustainability, and to see it as both a profit center and a long-term guarantee of durable returns.

We have to acknowledge the potential consequences of our current path, which includes a corroded hulk of a biosphere, economic instability and the destruction of capital due to unpredictable climate events. These challenges will have a significant impact on the wellbeing of individuals and society at large.

At the same time, since the subprime meltdown that roiled global capital markets in the first decade of this century, deployable capital has become increasingly concentrated. Yet the keepers of this capital find it challenging to invest with certainty and confidence. Philanthropy is shifting radically to meet the demands of the twenty-first century, centering on the need for cross-sector partnerships and input from the communities themselves as well. Donors are now keen to understand the long-term sustainable financial model which underpins the project or business for long-term sustainability and economic viability.

It becomes increasingly likely, with every manifestation of the climate catastrophe—abetted by corruption and conflict—that "safe harbor" for capital is a chimera. The insurance industry calculates that hundreds of billions of dollars of capital was wiped out by climate emergencies in 2022 alone.

The referees of global financial transactions—institutions like Euroclear, which are privy to data on several trillion euros of transactions daily—can and should use their unique position to influence antifragile capital flows that can thrive in chaos and disorder.

Erecting high-rises in major cities and keeping them empty just to make maximum profit on asset valuation within five years, not bringing any benefit to the real economy, is capitalism at its worst. The same applies to derivatives like credit default swaps (CDSs) and many more of the instruments bought and sold within milliseconds by day traders.

The recent US$ 20 billion in property damage caused by riots in France, as well as protests in Hong Kong, Chile and elsewhere, reflect the fact that members of the public will not remain passive when their quality of life is threatened. While protestors may focus their anger at government policies, the uncertainties, inequities and injustices they are rising up against are also the direct results of current capital flows.

For this reason, we need to rethink fiduciary duty. The metrics with which we measure wealth and value-added, as many leading economists and activists have called for, must be revised to include all human and non-human stakeholders, from staff and the communities in which corporations operate to the environment and biodiversity and the Earth's oceans and atmosphere. Focusing on profit and shareholder value alone is not only shortsighted and unjust, but also simply poor risk management.

We need to develop a more balanced set of financial performance metrics as well as a robust and resilient global financial ecosystem. Just as the UN and the global community have agreed on definitions of Sustainable Development Goals, we must define Sustainable Capital Goals and put in

place structures to ensure capital flows toward these goals.

This will place us in a position to fund such necessities as abundant food production through controlled-environment agriculture, zero-emission mobility of people and goods and easing or eradicating tariffs and other barriers that undermine global equity.

We are currently halfway through the timeframe foreseen to achieve the UN Sustainable Development Goals, which drive the 2030 agenda adopted by the United Nations General Assembly in 2015.

While progress is notable, it has yet to reach the momentum of an unstoppable force. In Capital for the Common Good, The Digital Economist proposes an actionable path to accelerating success in pursuit of the 2030 agenda, also known as the Global Goals.

We believe that there is a missing element in the concept of Sustainable Development: the ease and availability of targeted, reliable and predictable capital flows to achieve a peaceful and prosperous world where freedom from fear and freedom from want become a way of life.

If we are to unravel the Gordian knot of corruption, conflict and climate emergency, we need a new benchmark: Sustainable Capital.

Sustainable Capital drives Sustainable Development.

What is Sustainable Capital? In the broadest frame, it is capital deployment that creates both economic value and societal value, and recognizes each as sides of the same coin. In this paper, we began by defining Sustainable Capital Goals (SCGs) as a foundation of achieving Sustainable Development Goals (SDGs).

The Digital Economist fully supports the UN's view that the economic and social justice promised by the SDGs can be delivered more quickly and effectively with the widespread use of digital tools, including capital flows enhanced by a new cross-order financial backbone developed by and supported by the governments of the Global South.

Further, we explore the actions needed to ensure that SCGs drive SDGs in deeper detail. Yet before we do, it is worth considering the existential threat facing both our species and our biosphere, and the urgency of practical and achievable action. We note that investment decision-makers need to be further incentivised to take societal goals into account. A global consensus on how to prioritize, weigh and rank these societal goals is key.

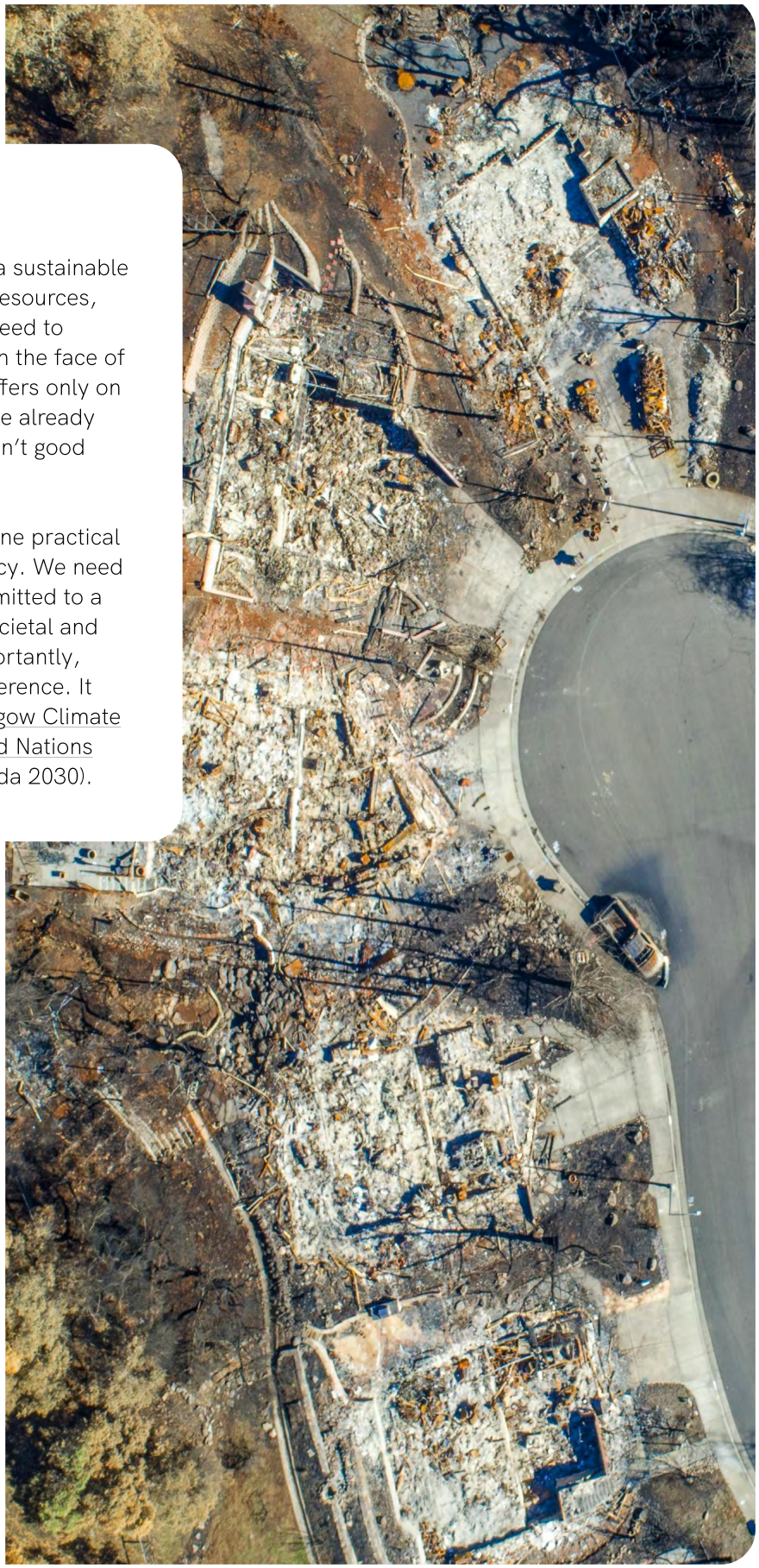
The results of climate change are already destroying millions of livelihoods and billions in capital investment. At random, with scant warning. How do we cope? With every unprecedented disaster, local authorities are quick to say this was a once-in-a-century event, once in a millennium flood/ cyclone/ blizzard. And imply that it won't happen again. Yet, every year we experience new world-record disasters.

It's the new normal. As the past five years have shown, the climate emergency is fully upon us. Floods in the Arabian desert. Rain where it hasn't fallen for decades. Fires break out in the Boreal forest, melting permafrost. Everywhere we look, rampant pollution, the climate crisis and mass extinction continue to consume our planet.

It's going to get worse.

And where are we?

Standing in the rubble of coastal Florida, a climate denier asked if taxing carbon would have prevented the disaster. Of course not. We can't stop climate change. It is the height of human arrogance to think that these processes, once set in motion and fuelled for decades, can be brought under our control within the short or middle term. But we will adapt. We will mitigate. We will build resilience.



We must do our best to find a path to a sustainable future. Have we been able to find the resources, the will, and the common resolve we need to address the triple crisis? Clearly not. In the face of this existential crisis, where science differs only on the extent and scope of the catastrophe already upon us, our best collective efforts aren't good enough.

Yet this is all the more reason to convene practical action to address the climate emergency. We need all of civil society, all enterprises committed to a triple bottom line of environmental, societal and governance outcomes—and most importantly, every citizen who wants to make a difference. It will need all of us, to achieve the Glasgow Climate Pact reached at COP26, and the United Nations Sustainable Development Goals (Agenda 2030).



From Vision To Action: G20 India And The Next Global Agenda

The Indian presidency of the G20 group of nations (more than twenty countries, as it includes the entire European Union) evokes the theme of a global family. The Sanskrit slogan of the Indian Presidency, Vasudhaiva Kutumbakam, is literally translated as all who belong to the Earth. This unifying planetary vision from the earliest Indo-European philosophy permeates every aspect of the meetings and events leading up to the G20 summit in September.

The Digital Economist believes that this planetary theme helps bring further clarity and focus on delivering Agenda 2030, achievement of the United Nations Sustainable Development Goals.

Representing nearly nine tenths of global economic output, the G20 itself captures all the dynamics presented in the larger United Nations—including the diplomatic standoffs that frequently arise at the UN, and more particularly within the Security Council. The Indian presidency, preceded by Indonesia and to be succeeded by Brazil, continues the evolution of a vision anchored in the Global South with promising implications for our common future.

The inclusive direction promoted by India—which itself puts women-led development at the forefront of its socio-economic agenda—offers promising paths for capital to serve the common good. What is needed to make this more than a political intent and make it an effective development tool, is the two key recommendations we offer: establishing Sustainable Capital Goals and achieving them through a new cross-border financial backbone.

These measures will help female entrepreneurs and other underrepresented parties access capital, ranging from microcredit to significant capitalization of enterprises—nonprofit, social and for-profit—devoted to sustainability.

This is amply reflected in India's G20 focus areas:

- Green Development, Climate Finance and Lifestyle for Environment (LiFE)
- Accelerated, Inclusive & Resilient Growth
- Accelerating Progress on Sustainable Development Goals (SDGs)
- Technological Transformation and Digital Public Infrastructure
- Multilateral Institutions for the 21st century
- Women-Led Development

This ambitious agenda, we believe, will be well served by summoning Sustainable Capital Goals to achieve the Sustainable Development Goals. The next section details the characteristics of what we propose to call Sustainable Capital Goals.

Capital Preservation, Rather Than Destruction

Investing capital in enterprises whose end use is to destroy the invested capital of others is the first consequence of armed conflict. As we see in the dozens of acts of armed aggression around the world—whether by crime, guerrillas, terrorists or full-scale armies—this is inherently an unsustainable and unproductive use of capital.

We start by getting smarter about how spending on armaments is deployed. The principal threats to national security – terrorism, drugs smuggling, human trafficking, cyber crime, biological threats like pandemics – will not be met by renewing nuclear arsenals. Nimble Zodiacs are better able to stop human smuggling than a new fleet of aircraft carriers, for instance. Sustainable capital, in terms

of planetary defence, means investing in the capacity to deal with the perils of today's world, while using the skills and knowledge of the military to build planetary defenses like the hard infrastructure of climate resilience.

The money invested in maintaining and developing new generations of nuclear armaments is sunk capital, in that, this is capital deployment that cannot create further wealth and value, and be recycled. It is capital as a destructive force, rather than a creative force. Given that the five permanent members of the United Nations Security Council are also the principal purveyors of nuclear weapons and arsenals – perpetuating investment in these weapons of planetary destruction while purporting to promote and preserve a peaceful, stable and rules-based international order— illuminates the scope of this challenge. Considering that significant shares of economic output in the G7 group of nations depend on perpetuating the established patterns, how do we shift resource allocation away from capital destruction to capital preservation?

If we literally pursue nuclear disarmament, stopping the further production of nuclear weapons given that there is enough destructive power in existence to extinguish humankind several times over, we can redeploy capital for beneficial ends.

A recommitment to the negotiations and treaties that took place at the turn of the millennium and lead to the phased and planned reduction of nuclear arsenals becomes an essential step, if capital is to be freed up for planetary defense.

Societal Development as a Value-Creation Engine

Politicians tend to think in electoral cycles. Policymakers who feed the decision-making agenda know that capital investments in societal development yield better outcomes in the medium- and long-term. We see sustainable capital in pursuit of the Sustainable Development Goals as an actionable path to long-term prosperity, stability and both social and economic equity. Yet it should be self-evident that optimal use of planetary resources and alignment of capital with achieving social development goals, will lead to wealth and value creation.

Achieving the foundational human rights – Freedom from Fear, and Freedom from Want – will unleash human creativity and accelerate the blossoming of human potential for the many. When the essential elements of a clement civil life are in place – universally accessible education, healthcare, clean water, clean air, safe communities – they become the normative framework of everyday life. This is what drives sustainable economic growth.

Sustainable development begins with affirming the importance of the role of government in society. To maintain its legitimacy it has to have a clear view of the social contract it needs to fulfill. This applies to all nations, regardless of their form of government, as social cohesion and social license – the consent to be governed – are more effective where hope rather than fear animates everyday life.

However, a government's ability to deliver on a credible social contract is underpinned by economic development and growth to drive its financial capacity to provide infrastructure and public services. The main driver of all successful economies has been the market economy and capitalism.

All the strong economies in the world are market economies. The China miracle with a market economy has created consistent high levels of economic growth. It averaged 9.45 percent GDP per annum growth from 1978 to 2019 driven by the remarkable entrepreneurial spirit and focus on wealth creation of the people. This has been supported by a real commitment to infrastructure development and a strong focus on public services by the government.

The prevailing theory has been that with limits to resources, market-driven pricing and the profit motive, these factors help drive the efficient use

and allocation of resources. Interestingly, we are now starting to move into a new phase of economic growth that is becoming decoupled from resource use.

Historically, technological progress has helped create more efficient use of resources for any good or service. However, rather than reduce use of resources, it has resulted in additional consumption in other ways. There has beena direct relationship between economic growth and resource consumption. The work achieved by the G20 so far, and particularly amplified in the Indonesian and Indian presidencies of the G20, offers two interesting horizons. The first is the possibility of moving into a world of abundance away from resource scarcity, while the second is the decoupling of economic growth and resource consumption in developed markets.

The intense focus on pure short-term capitalism that began in the 1980s is starting to shift toward more aligned goals with society, such as addressing climate and inequality and what has to date been defined as "compassionate" or "responsible" capitalism. This will intensify as corporate behavior is held to account by stakeholder groups and by escalating government agendas on climate, biodiversity, pollution, inequality and the societal impact of technology. It is also being driven at an accelerating rate by investors and asset managers wanting not just ESG regulation and reporting requirements, but strategies that integrate action on climate and the UN Sustainable Development Goals. In aligning capital flows with the optimal achievement of Agenda 2030, we must focus on the critical interlinking of economic growth with technological progress. Let's consider some of the alignments.

Continued investment in research and development has driven higher levels of financial wellbeing and overall economic growth. Economic growth and the level of research and development are inextricably linked. Historically, the majority of investment funding in basic research is provided by the government and other non-business sources. In applied research, the spending is more evenly split between business and non-business sources. Development is dominated by the business sector as it has a clear focus on potential economic returns.

Investment in both research and development are needed to continue to drive economic growth. Continuous breakthrough research as well as development spending on new products and services sustains growth over time.

The new social contract taking shape in the Indian G20 enhances the role of technology to drive to a net-zero position in greenhouse gas emissions and address the need for biodiversity regeneration. Net-zero targets and their transition plans are now on the minds of the majority of institutional investors.

It is already clear that technologies can help us shift to a carbon-neutral footprint and a declining ecological footprint on land and in the seas. The development of new technologies is vital to contributing to inclusivity and fairness across the world.

We have made great strides in reducing the levels of extreme poverty, which are now below 10 percent of the world's population from a level above 40 percent in 1980. As defined in the Indian G20 vision (one planet, one human family, and one future), inclusivity means universal access to food, shelter, energy, quality health services and education as well as to economic opportunities for all. Technology and innovation focused on creating abundance in key areas are essential ingredients in this quest. Fundamentally, a core role of technology is to render scarce resources abundant (eg. energy, water, food, health, learning, time, money, expertise). The critical components of abundance are dematerialization, demonetization and democratization of technologies. These factors are also drivers of economic growth.

Most of all, there is an urgent need to enable capital to flow as easily as possible to support the

Agenda 2030. This must come with changing the way capital is structured and the associated risk management tools.

While regulators around the world have systematically improved risk management mechanisms in recent years, with particularly significant changes following the financial and economic crisis that began unfolding in 2007, the interconnected global financial ecosystem remains vulnerable to various threats. Central banks have deployed measures to stanch the bleeding and avert knock-on effects, but there can be no denying the inherent fragility of the system, despite its safeguards. Why were regulatory bodies blindsided by the recent failure of Silicon Bank? Lack of current data, which prevented proactive actions to be taken to minimize systemic risk.

A further aspect that deserves attention is that the vast majority of global capital is locked in a closed loop controlled by the Global North. The cost of issuance of financial instruments is simply too high for smaller players, a barrier that increases reliance on VCs and angel investors. Particularly startups and incumbents with sustainable business models face prohibitive fees for ESG audits required for entry into sustainability indices. This is unsustainable in every sense of the word, considering the lack of real progress toward goals set by the United Nations Framework Convention on Climate Change (UNFCCC), with updated versions issued at annual COP meetings for years. More must be done to facilitate and encourage investment in protecting the planet. Women entrepreneurs receive approximately 2 percent of the venture capital, effectively locking out several female founders from opportunities to grow sustainable companies. As primary caregivers who are constantly managing constraints, women solve problems differently, and have been demonstrated to be better in managing risk.

To achieve women-led development outcomes, it is incumbent on the multilaterals backing the UN SDG agenda to set and meet funding targets for women-owned businesses and female fund managers.

We see compelling evidence that these two flaws – exposure to unforeseen shock events and insufficient sustainable investment – are not set in stone. We see them as both interrelated and surmountable, and propose a systematic allocation of capital to investment vehicles aligned with the 17 United Nations Sustainable Development Goals (SDGs).

This would not only offer long-term stability and robustness, but also serve the interests of humankind and the planet. At a time when funding is urgently needed for climate protection and mitigation of related threats, financial inclusion, education, food security and healthcare – to name just a few examples – SDG-aligned investment presents vast opportunities. In addition, the SDGs offer unassailable credibility as a clear, globally recognized and accepted roadmap toward a world that will allow our grandchildren to flourish and live healthy, happy lives.

The flow of international capital is today's problem —and tomorrow's solution. Instead of accelerating the SDG transition, the current ecosystem is increasing the complexity, cost and opacity of compliance. As a result, regulators have difficulty performing their supervisory role. Even worse, many entrepreneurs are hindered in accessing the capital market to develop sustainable ventures.

In terms of global financial transactions, this translates into the need for transparency and real-time data – the missing pieces of the otherwise sound system.

Until now, it was not considered possible to fully automate the flow from issuance origination to asset owners. While most of the ecosystem is managed by straight-through processing (STP), the fact that some processes remain manual and in natural language continues to prevent the regulator from accessing real-time data.

Bridging this gap is altogether doable via today's technology: we can now move from natural language contract description to fully automated,

executable and verifiable contracts. This enables almost 100% STP systems, offering regulators and other stakeholders enhanced transparency and up-to-date knowledge.

Collectively, the global financial community has a moral and social obligation to address these issues. We want to bring together the formidable abilities and leadership of economists and policymakers committed to the common good to help define and implement the missing piece that will enhance the robustness and efficiency of the global economy.

Finding a new way forward needs a focus on the core problems that plague the support systems for banking transactions – and, more specifically, cross-border financial market infrastructures. This global transaction infrastructure represents more than a quarter of the worldwide capital market ecosystem, or approximately US$ 50 trillion.

The current financial upheaval, like many of those in the last half century, exposes serious shortcomings in cross-border financial regulation. The lack of real-time data reported in a data standard capable of supporting current and forward-looking financial analysis continues to be a crippling factor, thwarting regulators' ability to optimally monitor and intervene when necessary.

The retrospective nature of regulatory oversight and intervention represents an obstacle to effective risk assessment, management and mitigation. Current analytic tools in finance, risk and regulation lack the robustness to strengthen the financial industry.

For these reasons, The Digital Economist calls for a surgical intervention in public-sector finance to drive global infrastructure reform and enhance the efficiency and effectiveness of finance ministries. By transitioning all functions to STP at scale, ministries of finance can foster private-sector implementation while reducing their own cost of borrowing for ESG bond issuance. Regulators, who report to finance ministries, would be empowered through the combination of real-time data and (existing) retrospective data. The public sector would act as a role model and driver of technological advancement while enhancing risk intelligence and benefiting ESG investment and compliance.

What is missing is a system for fully automated issuance that would allow cross-border issuers and finance ministries (representing 60 percent of the US$ 50 trillion global capital market ecosystem) to issue their securities on a standardized platform. Such a platform could provide efficient and equitable conditions for all players in uploading all pertinent data and information – removing the element of narrative that can lead to opacity and misrepresentation and greatly enhancing transparency and integrity in capital markets.

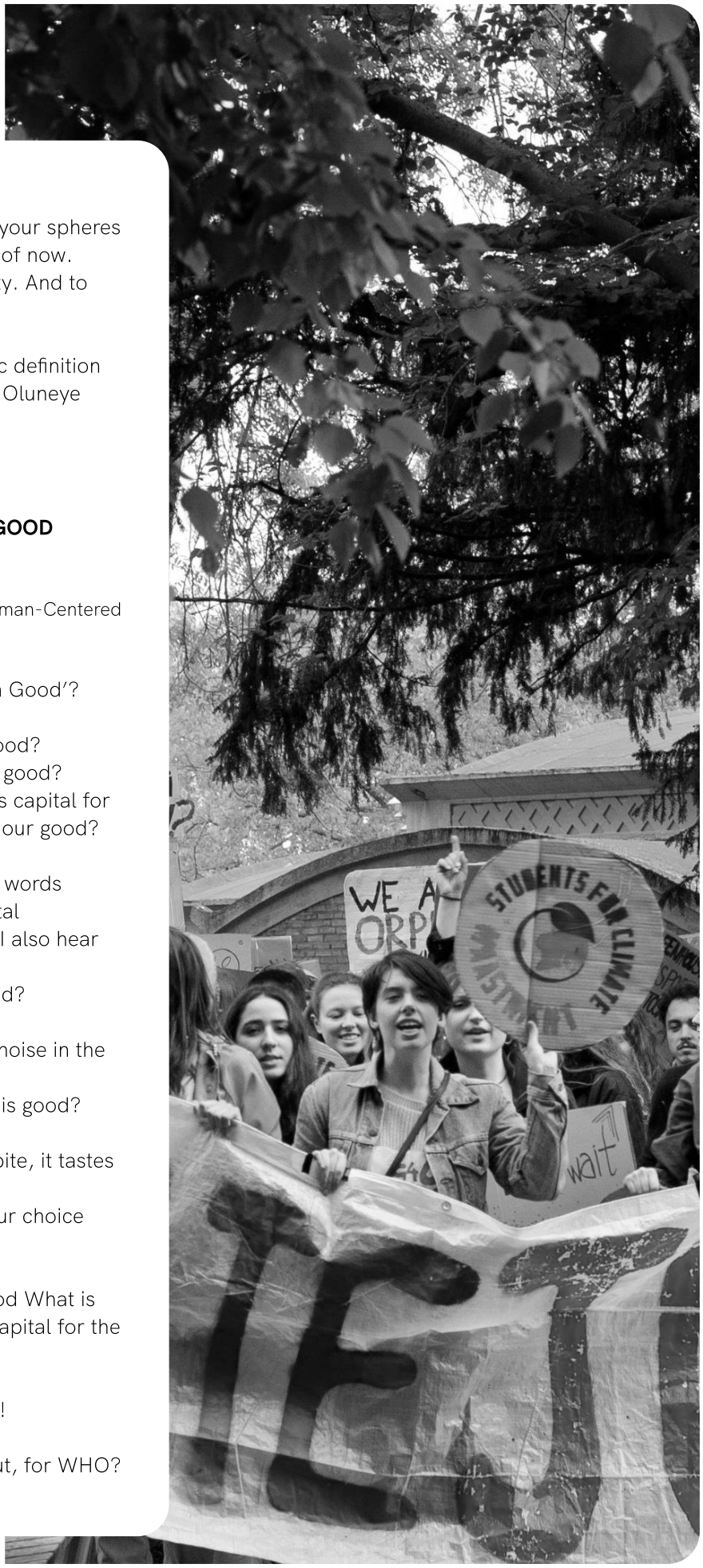
This would allow the regulators to use granular, structured, fully transparent, real-time, dynamic and forward-looking data throughout the entire lifecycle of an investment instrument, which can be examined with user-friendly analytical tools. A global automated system that ensures a common standard for capital flows, including data models and standard algorithms, would enable clarity and accountability.

This is why we find such promise, as noted earlier, in technological tools such as ACTUS and the ISDA CDM.

Central banks have deployed measures to stanch the bleeding, yet emergency measures are not enough to overcome the inherent fragility of the system. The Digital Economist believes there is a viable path forward, by assuring real-time data-sharing across jurisdictions.

As we have noted, our arguments in this paper are a call to action. Please join us on the journey of summoning Sustainable Capital Goals, and ensuring that we optimally deploy capital for better human and planetary outcomes.

Despite the flux and turbulence of the world as it is, we believe that SCGs for SDGs will shape an inclusive future that works for the many.



We encourage you to reach out within your spheres of influence to meet the fierce urgency of now. Come and join us to empower humanity. And to build a future that works for all of us.

And after all this prose, here is a poetic definition of our Call to Action, by our colleague Oluneye Oluwole:

CAPITAL FOR THE COMMON GOOD

By Oluneye Oluwole
Senior Fellow, Center of Excellence on Human-Centered Global Economy

What is 'Capital For The Common Good'?
Whose Good?
My Good, Your Good, Our Good?
When is capital for the common good?
When is capital for my good? When is capital for your good? And, when is capital for our good?

I hear their whispers I hear their words
I hear them describing capital
I hear, it must be for the good of all I also hear another saying
Which good, and whose good?

So much noise in the voice So much noise in the choice Who do I believe?
Who is right? What is right? What is good?

In one bite, it tastes good In another bite, it tastes bland
But each is right, depending on your choice

So, I ask again
When is capital for the common good What is capital for the common good Who is capital for the common good?

Capital! Capital!! Capital!!!

Good for all All for good All is good But, for WHO?



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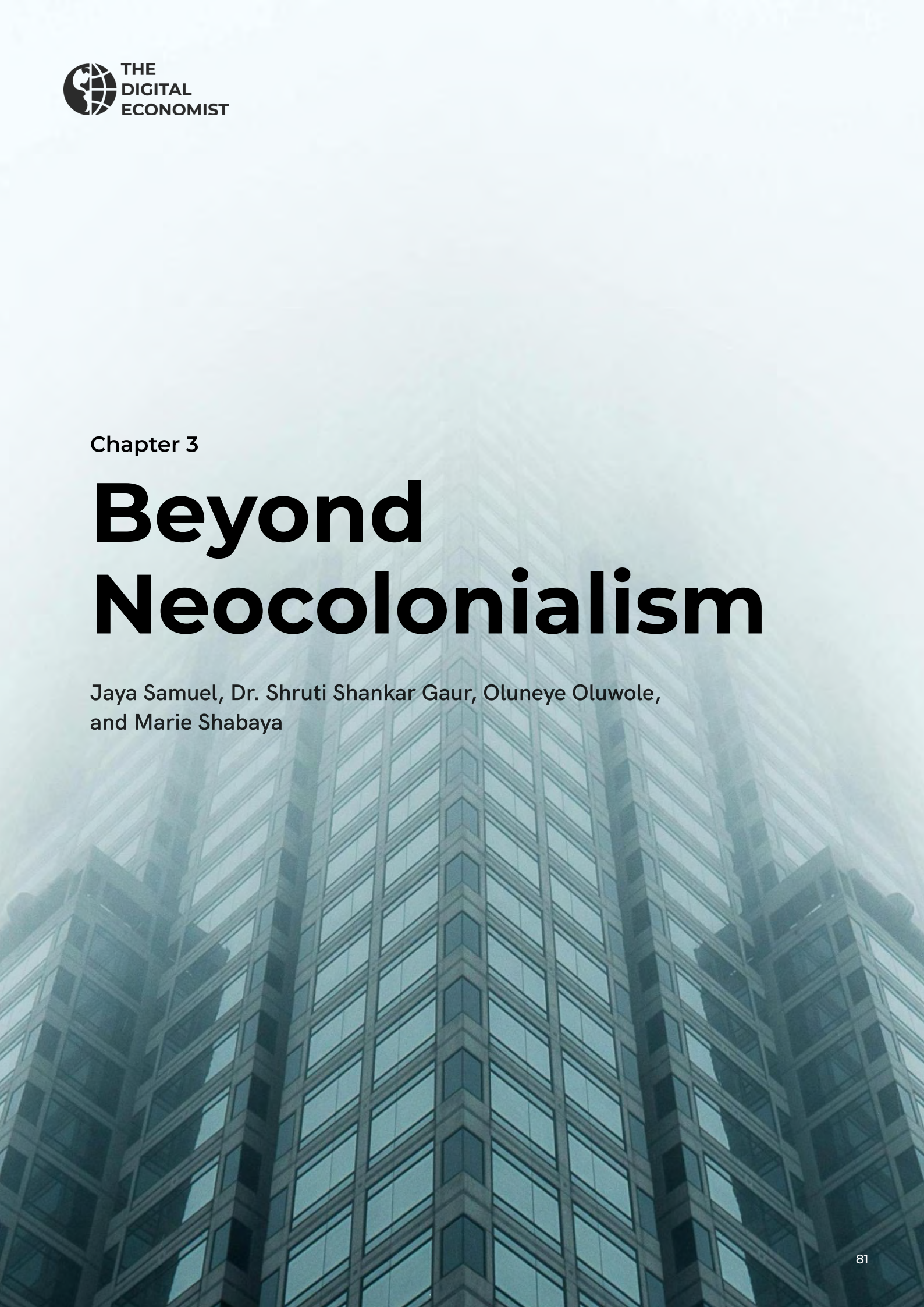
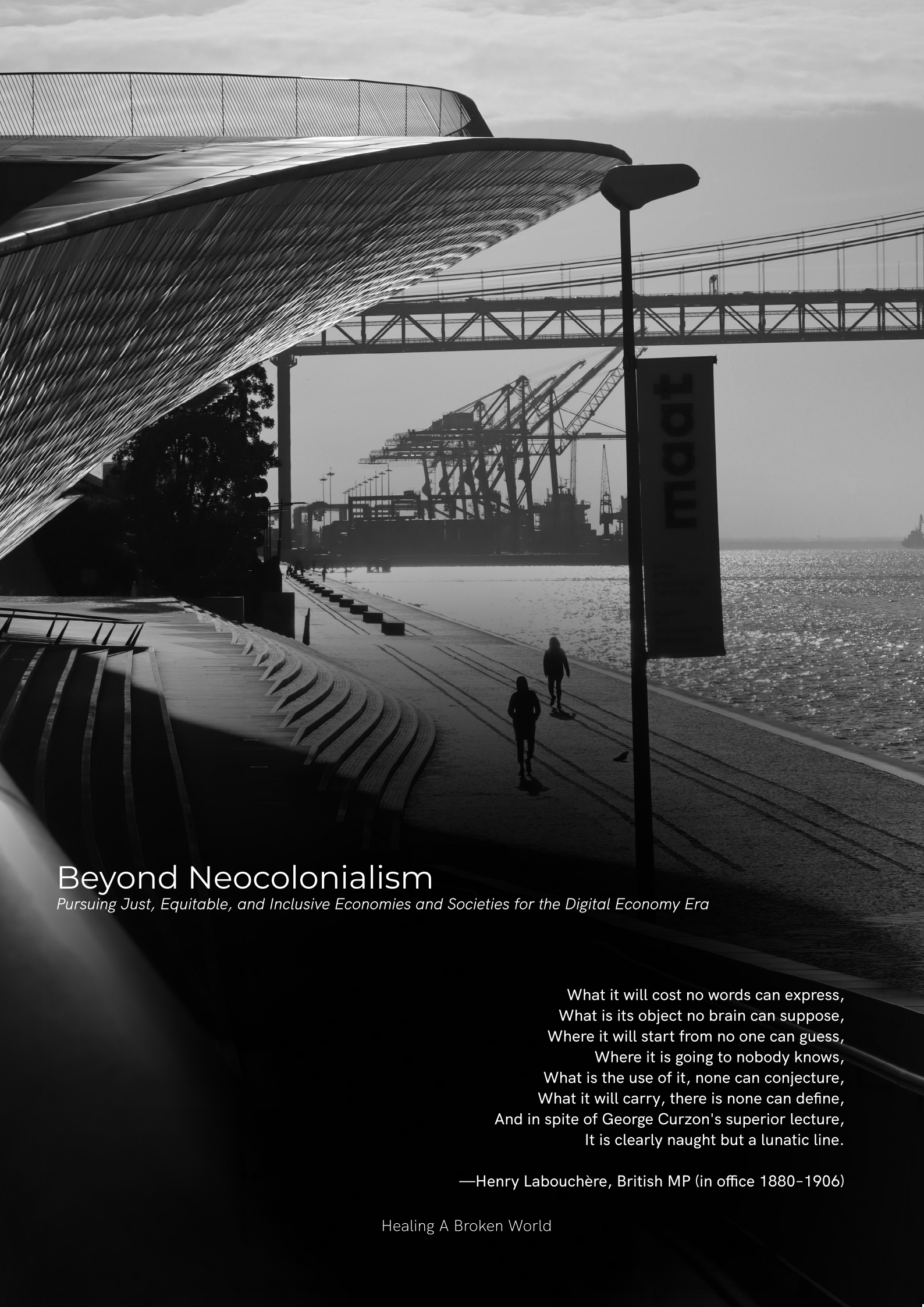
Chapter 3

Beyond Neocolonialism

Jaya Samuel, Dr. Shruti Shankar Gaur, Oluneye Oluwole, and Marie Shabaya





Beyond Neocolonialism

Pursuing Just, Equitable, and Inclusive Economies and Societies for the Digital Economy Era

What it will cost no words can express,
What is its object no brain can suppose,
Where it will start from no one can guess,
Where it is going to nobody knows,
What is the use of it, none can conjecture,
What it will carry, there is none can define,
And in spite of George Curzon's superior lecture,
It is clearly naught but a lunatic line.

—Henry Labouchère, British MP (in office 1880–1906)

Healing A Broken World

Setting the Scene: The Colonial Conundrum

In the past few centuries of our history, imperialistic powers and colonialism reigned over more than ninety countries, changing cultures and global traditions forever. Even today, as we stand almost a quarter into the twenty-first century, the effects of the colonial era can be widely seen in contemporary geopolitics. With economic power rising globally and companies wielding the GDPs of smaller nations, we must ask ourselves, how much of the colonial era is actually past?

The original 1,067-kilometer line of the Uganda Railway, completed in 1901, connected Kisumu, on the northeastern shore of Lake Victoria, through the interiors of Uganda and Kenya, with the Indian Ocean at the Kenyan port city of Mombasa. Today, the line lies within the borders of modern Kenya. However, at the turn of the twentieth century, it was seen as a British project of great extravagance, earning its defamatory moniker, the "Lunatic Express," and particularly so when coupled with the stories of construction crews plagued by disease and lion attacks.

However, in the final decade of the Victorian imperial era, characterized by such grand ambitions and endeavors, Henry Labouchère's poem reverberated through the halls of the British Parliament of 1894, expressing his sentiment toward the audacious undertaking. His poem drips with disdain for adventure, and he branded it a "gigantic folly."

At £3 million (or nearly 800 million USD in present value), the Uganda Railway stood as a testament to the often exorbitant pursuits of Victorian Britain's vision of its imperial grandeur. Winston Churchill describes this in his book *My African Journey* (1908) as the art of "muddling through" here on full display. Through everything—through forests, mountainous ravines, lions, famine, war, and five years of excoriating debate in the British Parliamentary—the building of the railway, in a more or less effective fashion, arrived at its goal.

Other nations had projected easily constructed rail lines through the barely known interior vastness of sub-Saharan Africa. However, the British planners for the Uganda Railway called it into being—from nothing—not as finite-detailed paper drafts of design plans for naval warship building, drawn in the offices of the British Admiralty and sent down to the controlled industrial management of the Royal Dockyards of Kent.

Instead, the planning for the Uganda Railway was reportedly lightly undertaken on the ground, concurrent with construction grinding through jungle and plain—an iron-hard artifact. Soon, its steam-engine whistles would disrupt Nyanza tribal peoples from their primordial nakedness and into *Americani* cotton piece goods from cotton grown in Egypt, the American South (hence *Americani*), and India, to be woven in the mills of Lancashire for domestic and export trade—another chapter in the long arc of the story of colonialism.

This chapter explores some of the complex narrative(s) of colonialism, with the Uganda Railway serving as a gateway to an understanding of the triumphs, follies, and enduring legacies of an era that shaped the destinies of nations. There is an emphasis on present cases and narratives serving as bridges to the exploitative past before looking at possible solutions to understand what can be practical solutions to steer ourselves into a more equitable and just future.

Further, we see whether the following passage still holds today:

Neo-colonialism is also the worst form of imperialism. For those who practise it, it means power without responsibility, and for those who suffer from it, it means exploitation without redress. In the days of old-fashioned colonialism, the imperial power had at least to explain and justify at home the actions it was taking abroad. In the colony those who served the ruling imperial power could at least look to its protection against any violent move by their opponents. With neo-colonialism neither is the case.

From the Introduction to *Neo-Colonialism, the Last Stage of Imperialism* (1965), Kwame Nkrumah, Ghana's President, 1956-1967

Some questions we ask in this chapter:

- Is the Democratic Republic of Congo (DRC) continuing as a consumer market for the benefit of its former European colonial powers through the current mining extraction of coltan (from tantalum ore) and niobium, essential minerals for the manufacture of capacitors for mobile phones, personal computers, automotive electronics, and cameras?

- Does the reportedly common occurrence of child labor employed in the mining of cobalt bound for China's manufacture of lithium-ion batteries for everything from EVs to iPhones justify the historic labor exploitation, including child labor, practices that were common to the colonial era continuing today? Different ore is being exploited, and the same demographic hands are doing the work.

- Are the needs of former colonial powers of the Global North currently fueling both economic and social injustice, inequity, and exploitation in the Global South?

- Are independent emerging and developing states still dependent economically and politically on their former imperial colonial powers in the "new international-trade form called neocolonialism?

- Are current migrant flows from the Global South to the Global North worldwide a modern-day holdover consequence of imperial colonialism traits being carried out in the present moment by the wealth and power of multinational corporations (MNCs) without sufficient regulatory governance or legal oversight?

Here, we attempt to ascertain whether emerging and developing countries are still being exploited and economically and politically disadvantaged by a new form of dependence on the former colonial powers of the Global North. And if so, what should be the call to action in addressing such conditions for a future built on human-centered fairness, equity, justice, and inclusion?

The Rise of Powerful Multinationals

A primary consideration of this paper is addressing why and how MNCs are able to not only function but flourish as fundamentally neocolonialist entities without being adequately held accountable as a matter of the lack of, and lack of enforcement of, effective international and domestic laws as well as the general perpetuation of colonial economic structures into the modern era of MNC power.

For at least a hundred years, we must pretend to ourselves and to everyone that fair is foul and foul is fair; for foul is useful and fair is not. Avarice and usury and precaution must be our gods for longer still.

***—Essays in Persuasion*, John Maynard Keynes (1931)**

In a world where "sovereignty and nation-statehood are the basic units of currency," the nuances of neocolonialism pervade our increasingly globalized economy. These features of national power in the Global South have been particularly obscured as economic development, or lack thereof, is the primary source of contention.

Again, drawing from Kwame Nkrumah, who describes the "essence" of neocolonialism:

The state which is subject to it is, in theory, independent and has all the outward trappings of international sovereignty… (yet) For those who practice it, it means power without responsibility, and for those who suffer from it, it means exploitation without redress.[1]

These concepts of "power without responsibility" and "exploitation without redress" distinguish *neocolonialism* from *transnational cooperation* and *collaboration*. Subjugative dependency summarizes both phrases, highlighting the imbalance of power between emerging and developing economies and the developed world.

In the case of economic dependency, the ability of developed countries to "provide" can be a deceptive power, where the lines between *aid* and *exploitation* are easily blurred by a lack of understanding of actual conditions, an on-the-ground, street-level view of the "aid" being provided, and the complex potentiality for the involvement of third parties. Ultimately, if this power is abused, the sovereignty that defines nationhood becomes a "bargaining chip" to be exchanged for the financial means of political, economic, and/or social survival and well-being.

Our discussion of neocolonialism seeks consideration of the contributions made by wealthy MNCs (principally headquartered in the Global North) to a deepening of economic dependency of the Global South on the North.

Both ESG And UNSDG Provide Useful Frameworks

ESG *(environmental, social, and governance)* policies provide useful frameworks for addressing these issues and impacts, as well as helping to shape a new, post-neocolonial paradigm for the Global South. The 17 major United Nations Sustainable Development Goals (UNSDG) offer another familiar and well-practiced context for understanding how the capital flows of aid also contribute to neocolonialist tendencies, even when well-intentioned.

This wave of neoliberal globalization in the modern era has given MNCs a *de facto* "right set of circumstances" for opportunistically intervening as simultaneous "providers" of workforce employment opportunity and perceived economic growth while often being exploiters of the Global South's labor and extractive resources.

Throughout the decades of the 1980s and '90s, the Global South regions (principally in Africa and Latin America) were presented with formulations such as the following:

- **Structural Adjustment Programs (SAPs)** are a set of economic reforms that a country must agree to and adhere to secure a loan from the International Monetary Fund (IMF) and/or the World Bank, as well as agreements.

- **Trade-Related Aspects of Intellectual Property Rights (TRIPS)**, established by the World Trade Organization (WTO) to regulate the international trade of intellectual property rights. The agreement sets out minimum standards for protecting and enforcing intellectual property rights in different countries.

[1] Nkrumah, Kwame. 1965. Neocolonialism: The Last Stage of Imperialism. London: Thomas Nelson & Sons.

- **General Agreement on Trade in Services (GATS)**, with the intended contribution by the WTO "to world services trade resting on three main pillars: [a] ensuring increased transparency and predictability of relevant rules and regulations, [b] providing a common framework of disciplines governing international transactions, and [c] promoting progressive liberalization."

All of these are intended to promote trade liberalization but may have ultimately resulted in the unintended consequence of wage decline, rising unemployment, and poverty increase.

Loans from international financial institutions (IFIs) such as the IMF, World Bank, the WTO, and the Organization for Economic Cooperation and Development (OECD) urge the Global South to seek and accept foreign direct investment (FDI) as a means of addressing lacking economic progress and the subsequent resultant loan debt.

Although the introduction of an MNC may initially benefit host countries through needed capital flows from factory and related infrastructure construction, for example, the "set of circumstances" outlined above present the risk of perpetual economic vulnerability, which host countries experience thereafter.

Such neoliberal globalization policies open up host countries to influence by the larger global economy (as demonstrated by the 2008 economic crisis) and may result in placing them in competition with each other to attract FDI by making labor cheaper, all while raising environmental and land-distribution concerns in addition to the evident reality of MNCs gaining a majority of the profit.[2]

Power without responsibility and *exploitation without redress* aim a spotlight at the ongoing capacity of MNCs for effective exploitation of developing economies of Global South countries and their populations due to a lack of enforcement of international human rights laws and national labor and environmental laws, as well as an absence or "overlooking" of alternative economic development sources and methodologies that accommodate host countries' financial circumstances.

Designing Change?

Possible solutions in combating this issue can be structured as conversations surrounding incentives for change, how those of the Global North and South may diverge and converge, and, most importantly, how the global economy could potentially shift in response to short and long-term change.

As we find new ways to engage in financing for UNSDG programs fruitfully, ESG policy and governance work may provide potent solutions for philanthropic grant funding rather than part of a mutually beneficial investment strategy. By targeting the connection between human-centered values and corporations' fair and equitable profitability for returns to investors, ESG and SDG work attempt to dismantle the seemingly fixed link between profits and exploitation by fostering new corporate standards that penalize rather than reward abuses of power.

How did we get here? The conception of MNCs as neocolonialist entities traces its origins back to the presence of Dutch and English trading companies operating in the Global South during the pre-industrial revolution period of the sixteenth through eighteenth centuries. Namely, entities like the East India Company (EIC), the Dutch East India Company (Vereenigde Oost-Indische Compagnie [VOC]), the Dutch West India Company (WIC), the Royal African Company, and the Hudson Bay Company in the British colonial era.

[2] Multinational Corporations in Developing Countries.

These trading companies presented themselves as proxy governments in imperial colonies. They thus substantiated the lack of separation of interests between governments and their private-sector industrial and commercial wealth trade interests. Indeed, the Hudson's Bay Company served as Canada's *de facto* governing body.

The EIC gradually attained authority to "conclude alliances and treaties with native princes, and lead territorial expansion," and directly contribute to politics as "British financial leaders became involved in the EIC, while company representatives advised the British government on financial affairs." In addition, "plantation companies such as the Virginia Company were licensed to establish colonies."[3]

Whether designed for long-distance trade and commerce or more imperialistic purposes, these companies "generally possessed royal charters that detailed their rights to wage war, conduct diplomacy, control commerce, and administer settlements in the known and undiscovered world" on behalf of their home governments. This emphasis on trading companies as independent, unbridled entities is a point of historic similarity and modern-era distinction of MNCs.

With the long transition from traditional trading companies to MNCs, government involvement in corporations/companies has shifted from overt to more furtive; even so, neither MNCs nor their respective home governments have been held accountable for their colonial/neocolonial exploits and practices.

Through preexisting treaties, trade agreements, privatization, and relatively easy access to investment capital formation, MNCs assert their power often in tandem with and even in lieu of the governments of their origin countries, equating them to proxy states. A current demonstration of this, one might be viewing a news video recording of a senior diplomatic meeting between Thai or Vietnamese and US officials, and at the same time and seated prominently at the same table may well be one or more senior executives of US- or EU-headquartered MNCs.



[3] Trading Companies.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Part 1: Real and Present Cases

1.1 What Is a Honduran ZEDE?

First established following the 2009 Honduran coup d'état, Zones for Employment and Economic Development and Employment (ZEDE) have recently taken the political stage after President Xiomara Castro and the National Congress repealed the law that originally put these zones in place.

Conceptually, ZEDE is a type of administrative division in Honduras that provides a high level of self-governing autonomy, even having its own civil codes and security or police force, while still being subject to the criminal code of the Honduran government.

These trade zones give private companies "'functional and administrative autonomy' from the national government," allowing them to control territory independently. In opposition to the repeal, US-headquarter company Próspera, a ZEDE "new-city" developer of St. John's Bay on the Honduran island of Roatán, is suing Honduras for 10.8 billion USD on the grounds of the overturning of ZEDE violating the Dominican Republic-Central America-United States Free Trade Agreement (CAFTA-DR). If Próspera prevails in its bid, it could bankrupt the country.[4]

1.2 So, Who Is This Prospéra, and Why All the Fuss?

According to the company's website, Próspera, headquartered in Washington, DC, is a developer of "new cities" with global aspirations. It is an intriguing concept described on its LinkedIn profile: "A platform for sustainable growth, developing twenty-first-century cities via a global community of builders, Próspera empowers modern pioneers to contribute to a new generation of flourishing cities. With a community of global talent, optimized governance, and momentum across multiple physical cities, we're actively shaping the future of human civilization." A bold vision, indeed!

Upon casual examination, Próspera's development on Roatán appears to be a Caribbean hub resort community to serve as a "digital-nomad" hub. It is backed by controversial Silicon Valley investor Peter Thiel, co-founder of PayPal and the first outside investor in Facebook, now Meta.

CAFTA's "extreme investor rights" empower the company to challenge democracy and effectively create a self-governing sovereign state within a country run by the technical secretary of the ZEDE CAMP.[5] Melinda St. Louis, director of Public Citizen's Global Trade Watch, stated, "The territory was removed from [Honduran] municipal jurisdictions." Under the provisions of now-revoked ZEDE, "Próspera would hold governing power, as a private development corporation, to set its own regulatory standards, tax policy, and monetary policy, security, have their own separate court system and, basically, run their own government."

Such self-regulatory powers are not limited to those directly affiliated with Próspera as cryptocurrency has opened the door for the average person to become an "e-resident." As such, individuals can open their own businesses and recommend regulatory codes, potentially circumventing both American and Honduran laws.

Yet again, profit and monetary power take precedence over democracy. The placement of Honduran sovereignty in the hands of not only

[4] Honduras Private Charter Cities.
[5] Honduras: Zonas de Empleo y Desarrollo Económico (ZEDE) y sus Impactos en los Derechos Humanos.

corporations but the "little man" (in this case, meaning individuals who buy into and decamp in St. John's Bay) communicates the insignificance of domestic authority in the eyes of this particular MNC with apparent similar ambitions elsewhere globally.

1.3 A Potentially Pernicious New Form of Neocolonialism?

Despite CAFTA's exigent implications, the clandestine nature of the trade agreement is also a testament to governance's disregard for local populations. St. Louis, in her reporting, explains, "the trade agreement that no one knew about, and…these secretive trade rules that empower corporations to be able to challenge democratic policies outside of the Honduran court system" (except in the previously noted case of criminal code violation). It isn't a US court, nor is it a Honduran court; "instead, disputes are arbitrated before in a private tribunal [with] three arbitrators, who will decide whether to ransack the treasury of the tiny country of Honduras…"[6]

Venessa Cárdenas, community council leader of Crawfish Rock on Roatán, details how the Próspera ZEDE has impacted her area: "We didn't hear it from the government, of course. We heard it through a community leader. And she practically was telling us underneath because she was so scared… We had to knock on so many doors because…no one knew about it. The authorities knew nothing about it."

This blind-siding approach is reminiscent of colonial practices: Local populations, unable to gain the information to protect their communities, may ultimately be forced to succumb to such alien jurisdiction dropped right in their midst. The lack of forewarning from the government is also a true show of its ineffectiveness in this circumstance. ZEDEs adopted the standard practice of promising employment opportunities to the local population to gain support. However, Cárdenas says this assurance was not fulfilled, and there was no recourse.

Promises developed into intimidation. Cárdenas speaks to the physical and psychological effects of ZEDE on her community. "Physically, the community was stuck in limbo," she told St. Louis. "People didn't even want to fix their fences because it was, like, you know, we don't know when we'll have to move…they have torn down a complete hill, a hill that has so many species of animals, species of trees, as well as [being] our main source of water. We already have a well that has been dried up."[7]

ZEDEs' physical environmental development threat transmutes itself into a psychological one, with residents fearful of the possibility of losing their homes if they do not support the corporate developer's agenda. Local populations, in such cases, see their choices as some form of activist self-defense or submission to scrape up whatever benefit may fall their way in terms of jobs or trade opportunities if the real estate development corporations succeed.

The question, then, becomes: Do local populations want to do this the "hard way" and fight for their equitable and inclusive participation? Or the "easy way" by passively hoping for the best outcomes but having no say, control, or ownership stake in their community's economic development? Often, extreme laws and treaties employed by MNCs can tacitly entitle them to undermine local populations while avoiding accountability for doing so and, thus, exploit developing countries.

International law at its foundation—as identified in Article 38 of the Statute of the International Court of Justice (ICJ) in the Hague—is "an international institution with the combined consideration of [1] treaties; [2] customary international law, derived

[6] https://www.democracynow.org/2023/6/28/honduras_private_charter_cities
[7] https://www.democracynow.org/2023/6/28/honduras_private_charter_cities

from a general practice accepted as law' and exist independent of treaty law[8]; [3] general principles of law; and [4] 'judicial decisions and the teachings of the most highly qualified thought leaders of the various nations, as a subsidiary means for the determination of rules of law.'" Such "consideration" is significant because, generally, the law of nations is a system of norms that is ultimately not enforced.

The following sources of international human rights law provide a framework of standards that can help determine whether MNCs are committing "crimes against humanity" that may be legally addressed. These are embodied in general conventions open to all states, regional conventions, conventions pertinent to specific rights, conventions protecting specific groups, and customary international law.

1.4 Does It Qualify as "Criminal Behavior"?

Within the context of the current presence of MNCs operating in the Global South, international human rights law may be especially applicable, given that genocide, apartheid, human trafficking, child labor, enslavement, physical abuse, and torture are its decisive norms.[9]

The International Criminal Court (ICC) in the Hague is an intergovernmental treaty body and international tribunal. It is an extension of international law as established by the Rome Statute treaty, 2002 *(which the US signed but never ratified, which requires a two-thirds majority vote of the US Senate).*

The ICC functions as a "court of last resort" that prosecutes individuals in collaboration with domestic law enforcement or third parties. In contrast, the International Court of Justice (ICJ) settles conflicts between nations.[10] That is a critical distinction pertinent to the subsequent discussion of the ICC's role in prosecuting MNCs.

In effecting justice and peace, the ICC acts on a "principle of complementarity intervening, where national courts are unwilling or unable to prosecute accused parties,"[11] including heads of state, as well as non-state actors such as rebel group leaders. The dynamic between domestic and international law is key to determining whether these acts occur without legal constraints and how to address them effectively.

Crimes against humanity are within the jurisdiction of the ICC. Enslavement, torture, imprisonment, or other severe deprivations of physical liberty are the acts most likely to be perpetrated by MNCs against economically dependent local populations in the Global South.

Economic dependency has not only existed as a situational standing but has become embedded in the Global South's public perception and sustained reality. "Banana republics" describe developing countries, namely in Latin America and the Caribbean, solely dependent on single cash crops for economic stability. Formed in 1899, the United Fruit Company (UFC) directly created and perpetuated the meaning of the term "banana republic" by controlling the "economic lifelines" of countries such as Guatemala, Honduras, and Nicaragua.[12]

For countries with a single wealth-creation "lifeline," the hegemonic nature of these markets places economic and social survival and any notions of the prosperity of local populations in the hands of culturally dissonant and exploitative foreign entities. The paradox in these systems of dependency is one of voluntary disenfranchisement in exchange for economic or social "aid."

[8] Customary Law.
[9] GOV 1740 Notes.
[10] The Rome Statute and the International Criminal Court: Factsheet.
[11] The Rome Statute and the International Criminal Court: Factsheet.
[12] China's Role in Global Governance.

1.5 When Beer-Making Supersedes Domestic Water Needs

For example, in Mexico, a US-headquartered MNC, Constellation Brands, forced its Corona and Modelo brewery workforces to keep working through the COVID-19 pandemic to maintain contractual promises to US distributors and consumer suppliers.

However, an even greater issue may be the operational water use by the breweries as much of Mexico struggles with climate-change-driven long-term (and worsening) drought, covering the areas where the company's Corona Modelo brands are brewed. "A single brewery plant of the beer manufacturer uses up water equal to that required for 600,000 homes, pushing locals to desperate marginality."[13]

Such contractual promises to US distributors via MNCs manifest as the tacitly "allowed" abuse of resources, both environmentally and socially, with no functioning governance. The current control of extractive raw materials by the Global North is evidence of historic (and often inherited) colonial structures remaining intact, especially given the lack of equitable financial compensation to local populations engaged in debilitating working conditions or potentially dangerous resource extraction, such as in the case of Constellation Brand's extractive water use in a drought-stricken region.

1.6 Coffee and Economic Exploitation

"Ethiopia's 'Arabica' coffee is the biggest [coffee] export in Africa, (followed by) Uganda, Kenya, Tanzania, and Cote d'Ivoire. It's said that…coffee farmers in Ethiopia sell up to four USD for a kilogram [kg] of coffee, while large coffee corporations make up to 200 USD for each kg of coffee. This means foreign investors like Starbucks make millions as a result of slave labor."[14]

Similarly, in Honduras, "children are paid 10 cents per pound of coffee picked, and growers receive less than one percent on average of what consumers pay for a cup of coffee."[15]

Environmental and human resource abuse by MNCs isn't a onetime accidental occurrence, and its impacts are multigenerational. Social and ecological degradation, too often inclusive of human rights violations and violence, resulting from MNCs' intentional developmental undertakings are a visceral reminder of neocolonialism's real and present frameworks.

1.7 Oil *Über Alles*: Villages, Livelihoods, Farmlands, and Water Resources

On June 11, 2023, the Shell Global-owned Trans Niger-Pipeline burst at Eleme in Rivers State, south Nigeria. According to an AP report published by Al Jazeera at the time, the "oil spill at a Shell facility… has contaminated farmland and a river, upending livelihoods in fishing and farming communities in the Niger Delta, which has long endured environmental pollution caused by the oil industry.

"The National Oil Spill Detection and Response Agency [NOSDRA] told the AP that the spill came from the Trans-Niger Pipeline operated by Shell that crosses through communities in the Eleme area of Ogoniland, a region where the London-based energy giant has faced decades-long local pushback for its oil exploration" and resultant pollution.

[13] Will Biden End America's Exploitative Role in Latin America?
[14] Neocolonialism: How Western Corporations Are Exploiting Africa.
[15] Tamara Pearson. "Will Biden end America's exploitative role in Latin America?

In the oil-rich region, where "over 40 million liters of crude oil is spilled annually," this incident, in particular, was contained after a week, with Shell Global again attributing it to pipeline vandalism and the illegal tapping of crude (oil).[16]

Both land (soil) and water contamination from such spills is a continuously ongoing problem. When interviewed by CNN in 2019, then-thirty-two-year-old Yamaabana Legborsi recounted the lifelong presence of oil companies in Gokana in Ogoni, the most affected community in the region. "We could not play in the sand like other children; else you are covered in black crude. My mother was especially worried it was not safe, and so were other parents. We could not…eat the fishes that washed away from the river; you would see crude all around the water."

For Legborsi, the situation has remained unchanged, "I cannot drink water from my borehole. You can perceive crude oil and kerosene [in the water]. Many of the residents here drink well water that is contaminated, too."[17] While the community has been able to prevent oil companies from using their land, the impact of previous companies remains despite cleanup promises.

Such cleanup commitments continue to be broken by MNCs, such as Shell Global, inclusive of its involvement in violence that isn't just limited to the destruction of necessary resources but extends to entire regions as MNC activities provoke and sustain conflict.

In 2017, an Amnesty International report found that: "The evidence we have reviewed shows that Shell repeatedly encouraged the Nigerian military to deal with community protests, even when it knew the horrors this would lead to—unlawful killings, rape, torture, the burning of villages," said Audrey Gaughran, Director of Global Issues.

1.8 Blood Diamonds? Yes. Still.

Conflict diamonds, aka "blood diamonds," are legendarily infamous for their role in financing armed conflicts (hence the term) and subsequent displacement, including linkage to enslavement, human and sex trafficking, and the deaths of millions of people across Angola, Central African Republic, the Democratic Republic of Congo, Liberia, and Sierra Leone.[18]

Global Witness was the first international organization to investigate and publicize the involvement of De Beers Group and its Central Selling Organization (CSO) in funding the Angolan conflict through their report, "A Rough Trade." The organization outlines and timelines the De Beers diamond company and its conscious purchasing of diamonds from territory and traders controlled by UNITA (National Union for the Total Independence of Angola).

According to the 1994 Human Rights Watch Angola Report, "The De Beers diamond cartel and other international dealers are buying *[at that time]* gems mined in rebel-held areas in violation of Angolan law… De Beers admitted spending 500 million USD to buy legally and illegally mined diamonds originating in Angola in 1992 in open market transactions."

Given that UNITA has controlled 60–70 percent of Angola's total diamond production since 1992, these transactions earned them 3.7 billion USD in revenue to fund their conflict efforts. *Table 1* below outlines the yearly "social costs" from diamond sales.

[16] Nigeria Oil Spill Inquiry.
[17] Nigeria Oil Spill Inquiry.
[18] Conflict Diamonds.

1997 Human Development Index Ranked Angola 157th Out of 175 Countries

Population Living in Absolute and Relative Property	82.5%
Infant Mortality Rate for Children under 5	320 per 1,000
Disabled Land Mine Victims	200,000
Life Expectancy*	42 years
Internally Displaced Persons*	1.2 Million
Population Without Access to Fresh Water*	53.9%
Population with Access to Health Care (UNICEF Estimates)	35%
People Requiring Food Aid	3.2 million
Rate of Illiteracy*	50.9%

(Source: UCAH)

* UNDP Human Development Report Angola 1997

The scale of this conflict-diamond funding gave the party sufficient power to essentially ignore the 1992 election results, thus avoiding adherence to the Lusaka Protocol, which was anticipated to end the war.

Throughout the conflict, De Beers asserted its innocence through phrasing such as "fair dealing and integrity" and "highest ethical standards," along with the reemphasis of the company as a family business. Such rhetorical language became staples of annual reports and interviews.

Additionally, claims of being unable to identify Angolan diamonds and the involvement of intermediaries in these open market transactions further muddled the company's involvement. Despite claims of naivete, De Beers contradicted themselves: "Indeed, in 1992 De Beers boasted 'that we have been able to buy some two-thirds of the increased supply from Angola is testimony not only to our financial strength but to the infrastructure and experienced personnel we have in place.'"

In the chairman's letter of their 1996 annual report, the company initially stated, "In Angola, we were able to commence only limited aerial exploration of our three prospecting areas. We hope that peace will soon be restored, and so allow the full exploration program to proceed." In the same report, the company later stated, "The increasing outflow of Angolan diamonds to the major cutting centers, much of which De Beers was able to purchase through its outside buying offices."[19]

Amidst De Beers's self-proclaimed contradictory enabling and shunning of UNITA, *table 1* presents the on-the-ground social conditions experienced by Angolans in 1997.

The company's apparent complicity in the violence committed by UNITA and the indifference of Shell Global to the environmental ruin of local communities is an overt demonstration of the detachment MNCs have from the very human crises to which they appear to contribute. Bolstered by the vast physical (and cultural) distance between MNCs' headquarters and host countries for their international operations, it is a detachment that verges on complete disregard.

1.9 Corporate Neocolonialism Alive and Well

This rather nouveau chapter of corporate Neocolonialism, as practiced by MNCs (often

[19] Conflict Diamonds.

openly complicit with governments), results in actions taken by MNCs in the form of exploiting economic dependency (again, even when appearing as well-intentioned) and may also exist as contributory to events often resulting in both environmental degradation, as well as both social and governance destabilization.

In the context of the Angolan civil war and similar instances of MNCs capitalizing from and/or subsidizing conflict in the Global South, such as "a British corporation knowingly supplying Rwanda with arms to kill Tutsis, [and] a Dutch corporation selling raw materials to Saddam's government for the production of chemical weapons to be deployed against the Kurds"[20] a question is raised of the extent of MNC involvement as it relates to its financially benefiting and without loss and damage accountability.

While MNC involvement in worker exploitation or human rights violations may be more visible, evident, and direct in the eyes of international law and labor standards, can MNCs and individual executives and shareholders also be held accountable for the crimes against humanity and war crimes committed during these conflicts?

1.10 A Modern Context for Slavery?

To further understand how MNCs are more explicitly culpable for violating international law and standards, the following are definitions of slavery and servitude, as outlined by the International Labor Organization (ILO):

- *Servitude* is the umbrella term with which the exploitation by MNCs against local populations can be defined; it is "that condition in which the work, service, or relationships of another person are not freely offered or, if voluntarily initiated, cannot be left or refused, and are maintained under the threat of physical or psychological coercion, violence or some other penalty."[21]

- *Slavery*, within this context, is defined as "that condition in which one or more individuals or organizations exercise complete control and possession of a person's body, labor, capabilities and movement through the overt or threatened use of violence or other forms of coercion."

- *Forced labor* is defined as "all those forms of servitude in which the exploitation of labor, sexual and non-sexual, for profit, is the primary motivation of the exploiter."

It should be noted that slavery is distinct from circumstances where labor is offered due to extreme poverty, given that the "conditions of complete control, possession, and inability to leave are unmet." According to the World Bank, this form of servitude is considered "consensual exploitation."

Ultimately, "all slavery is forced labor or servitude, but not all servitude is slavery."[22] These distinctions must be made in order to determine whether the ICC potentially has the jurisdiction to take action on the grounds that MNCs and third parties are committing crimes of enslavement, torture, imprisonment, or other severe deprivation of physical liberty.

Footwear maker Nike Inc., in particular, has been at the forefront of forced labor accusations in China as members of China's Uyghur ethnic minority are being used as forced labor in factories far from the so-called re-education camps that have held them for years in Xinjiang.

[20] Corporate Accountability: Prosecuting Corporations for the Commission of International Crimes of Atrocity.
[21] GENED 1115 Notes.
[22] GENED 1115 Notes.



As of January 2024, about six hundred workers from Xinjiang were employed at one of its largest suppliers: Qingdao Taekwang Shoes Co. Ltd., which produces more than seven million pairs of shoes for Nike annually, according to the Australian Strategic Policy Institute.

The workers, mainly young Uyghur women, were not working voluntarily and were additionally forced to attend night school to learn Mandarin and receive a "patriotic education."

"Xinjiang aid," created to continue Uyghur forced labor outside of Xinjiang, is a government policy through which even Uyghur workers in their teens are advertised by private middlemen and local governments: "The advantages of Xinjiang workers are: semi-military style management, can withstand hardship, no loss of personnel… Minimum order 100 workers!"[23]

As of 2023, Nike stated that it doesn't source products from China's Xinjiang region following the release of the Australian Strategic Policy Institute's report quoted above, and as of 2022, Nike confirmed that Taekwang Shoes would end its contracts with Uyghur workers and went on to conduct "an independent third-party audit [that] confirmed there are no longer any employees from [Xinjiang Uyghur Autonomous Region] at the facility"[24] but continued to work with the supplier.

In addition, the US Congress passed the Uyghur Forced Labor Prevention Act following the initial forced labor reports in 2020. The validity of Nike's most recent audits is contentious given the audits' inability to detect Ugyhur's forced labor previously, most likely due to the inability of Ugyhur workers to provide information to auditors without consequence.

[23] Nike, Apple Linked to Forced Uighur Labor in China, Report Says.
[24] The China Challenge: The Stain of Forced Labor on Nike Shoes.



Part 2: How Can MNCs Do This?

The primary discussion of this paper is to address why and how MNCs are able to function as neocolonialist entities without being properly held accountable. The lack of enforcement of international and domestic laws, as well as the general perpetuation of colonial economic structures, have been the primary reasons.

For example, as of 2020, in the Ivory Coast, a journalist reported that "child labor is still profound on cocoa farms even after 20 years of pledging to eradicate child labor." Because of this, brands such as Hershey, Mars, and Nestlé were unable to guarantee that any of their products were produced without child labor.[25] While the above-detailed acts of forced labor imposed on local populations *definitionally* satisfy modern slavery criteria and, therefore, should be under the jurisdiction of the ICC as a crime against humanity, the following legal gap prevents them from doing so:

As corporate entities, MNCs are outside the jurisdiction of ICC investigation because they aren't considered individuals. With this stipulation, however, individual corporate officers can be held liable for corporate actions, thus allowing the corporation itself to avoid accountability. Additional legal gaps include "none of the UN complaint procedures related to human rights possess mandates to monitor the activities of corporations."

Likewise, "regional human-rights courts also lack… jurisdiction over both corporate entities and individual corporate officers," and domestic judicial mechanisms are also unable to act due to "a lack of action on the part of criminal prosecution and law enforcement bodies, significant legal uncertainty surrounding the scope of key liability concepts, unevenness in distribution and use of domestic remedial mechanisms, some political concerns over extraterritorial regulatory and enforcement issues and a general lack of international coordination and cooperation."

Thus, as noted by Associate Justice Anthony Kennedy in the 2017 US Supreme Court decision in Jesner v. Arab Bank, "there is no specific, universal, and obligatory norm of corporate liability under prevailing international law."[26]

Continuing the comparison between British Empire trading companies and modern MNCs, it should be noted that joint stock companies such as the Virginia Company, chartered in 1606 and previously mentioned here, were "considered legal persons with an expectation of institutional permanence and perpetual succession."[27] However, in the 2010 Citizens United v. Federal Election Commission case, the US Supreme Court held that corporations have Constitutional First Amendment rights, therefore granting them standing as individual persons.

The context of the case itself is as follows: "A conservative nonprofit group called Citizens United challenged campaign finance rules [governing political donations] after the FEC stopped it from promoting and airing a film criticizing presidential candidate Hillary Clinton too close to the presidential primaries."[28] In a 5-4 majority decision the Supreme Court ruled that corporations and other outside groups were given the ability to spend money without limit, with the rationale being that "limiting independent political spending from corporations and other groups violates the First Amendment right to free speech."[29]

[25] Neocolonialism: How Western Corporations Are Exploiting Africa.
[26] Corporate Accountability: Prosecuting Corporations for the Commission of International Crimes of Atrocity.
[27] Trading Companies.
[28] Citizens United Explained.
[29] Citizens United Explained.

The court's decision on Citizens United established the precedent for corporations to be considered individuals and, therefore, under the jurisdiction of the ICC. It is necessary, however, for this precedent to become an international norm (customary international law) or be adopted in a treaty to be considered international law and, therefore, be applicable by the ICC.

2.1 MNC Accountability Challenge in the Digital Economy Era

Why, now, are solutions to this embodied in international law so necessary? And beyond justice and equity in the emerging and developing economies of the world, predominantly in the Global South?

Because in this accelerating digital transformation moment of the global economy, one characterized by its disruptive nature, the enabling technologies and know-how that enable this transition are overwhelmingly developed and owned by the wealthy Global North and exported to the developing Global South. Too often, emerging and developing economies are not fully able to protect their nation-state data sovereignty nor own fair economic and social participation in this era.

The dawning of artificial intelligence (AI) and related technologies will cause a massive global buildup of the data center and digital infrastructure sector. An AI-competent hyper-scale cloud computing and data storage facility can cost between 500 million USD and 3 billion USD to build, commission, and operate, with the bulk of the economic gain, yet again, going to the MNC investor-and-developer class in the industrialized Global North.

Likewise, these behemoths' demand for electric power for countries unable to transition to clean energy at the velocity and scale required might well result in a new, next-generation neocolonialist environmental degradation, economic inequity, and social costs. The inequities of the "digital divide" magnified as both know-how and capital predominantly originate with the MNCs of Global North.

What kinds of solutions might end this historic cycle?

- Creating and enforcing domestic labor/ employment laws, inclusive of education and skills training
- Fostering local innovation, entrepreneurship, and micro-finance
- Advancing UNSDG programs
- Reforming ESG policies of MNCs
- Training and education of MNC host regional and local leadership

While international law may be unable to hold corporations accountable, the preceding solutions outline some of the ways both domestic and international communities can mitigate forced labor and human exploitation, environmental destruction, social stress, and harm, as well as encourage the shift from neocolonial behaviors to paradigms of justice, equity, diversity, and inclusion (JEDI).

In "Global Goliaths," Emma Aisbett, Ann E. Harrison, David I. Levine, Jason Scorse, and Jed Silver discuss whether MNCs exploit foreign workers and introduce the following lenses of exploitation: consequentialist, unfair share, and violation of human rights.

- *Consequentialist* "considers whether workers would be better off had they not been employed by an MNC";

- *Unfair share* "occurs when profitable firms do not sufficiently share their profits with their employees" (as well as the countries and communities in which they operate);

- *Violation of human rights* categorizes "exploitation as a violation of human rights."

In this context, human rights are defined as "limits on child labor, forced overtime, unsafe conditions, discrimination and violence against women."

The distinction between the consequentialist and unfair-share/violation of human rights lenses is that "under the unfair-share or human rights approaches, a multinational can be said to exploit workers even when the job is better than most jobs at domestic employers."[30]

2.2 International Labor and Employment Conventions

In comparing MNCs to domestic industry, the authors suggest that an MNC's origin country's regulatory stance on labor rights will go a long way in determining whether workers in host countries are treated better or worse, stating, "It is reasonable to assume that a multinational based in Germany or Sweden, where labor rights are relatively strong, typically treats workers in poor countries more favorably than an MNC whose headquarters is in China or India, where labor rights are relatively weak."

The authors continue this analysis by also stating that a country's political or legal support of labor rights may not garner the same attitudes in the work environments themselves. For example, "Saudi Arabia and Kazakhstan agreed to respect core International Labor Organization [ILO] agreements, but few workplaces in Saudi Arabia avoid gender discrimination, and few in Kazakhstan permit free unions."

Through a consequentialist approach, regardless of whether a country, host, or origin supports labor protections, the "on-the-ground" conditions may enable these protections to be neglected. "In short, most low-skilled workers in poorer nations receive low wages and have poor working conditions, regardless of the employer's ownership."[1] Once again, the obstacle in protecting workers from both domestic and international exploitation is the lack of enforcement or the existence of domestic labor laws.

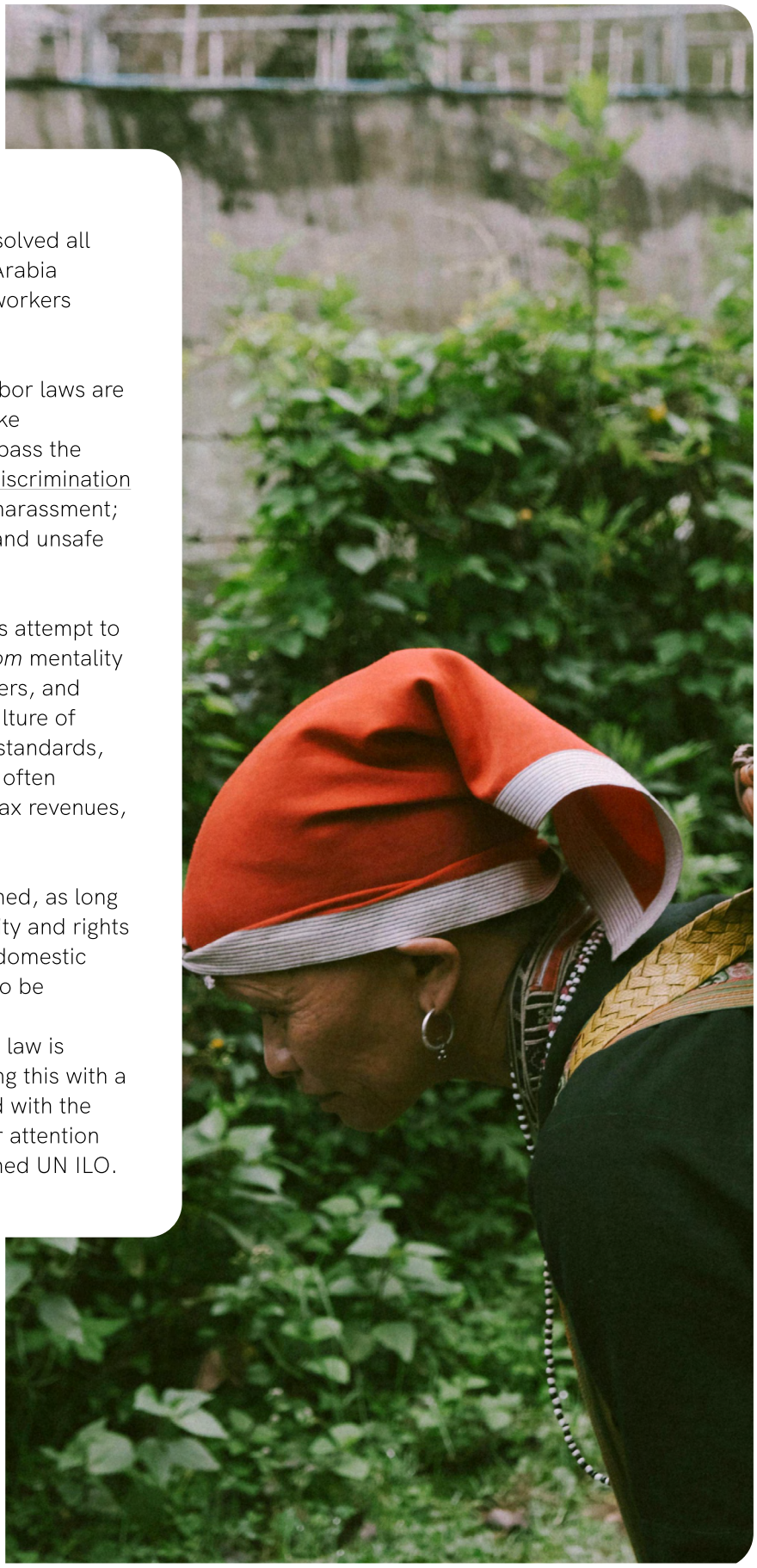
2.3 An Important Distinction: Labor Law vs. Employment Law

Any discussion regarding legal protections for workers must begin with the following distinction: "Employment laws govern the relationship between an employer and employee, while labor laws govern the relationship between an employer and labor union."[32]

Thus, in the context of labor laws, if neither host countries, labor suppliers, nor MNCs can be relied upon to abide by or adopt legal protections for workers, workers must turn to each other. Labor unions (formal or informal) act as an intermediary between labor suppliers and individual workers, existing (and acting) as a protective legal body in the place of government. However, bans on unions and challenges to the status quo in general leave workers isolated and vulnerable.

In 2019, "workers had [either] no or restricted access to justice in 72 percent of countries, with severe cases reported in Cambodia, China, Iran, and Zimbabwe… [meanwhile] the number of countries where workers experienced arbitrary arrests and detention rose from 59 in 2018 to 64 in 2019, with mass arrests seen in China, India, Turkey,

[30] Aisbett, Emma, Ann Harrison, Alix Levine, Jason Scorse, and David Silver. 2022. Global Goliaths: Multinational Corporations in the 21st Century Economy.
[31] Aisbett, Emma, Ann Harrison, Alix Levine, Jason Scorse, and David Silver. Global Goliaths: Multinational Corporations in the 21st Century Economy.
[32] Mexico Labor Laws: A Comprehensive Overview.



and Vietnam." For its part, "Egypt dissolved all independent labor unions, and Saudi Arabia continues to keep millions of migrant workers trapped in modern slavery."[33]

In countries where labor unions and labor laws are insubstantial, employment laws can take precedence. Employment laws encompass the protections from workplace or hiring discrimination due to race, gender, age, etc.; sexual harassment; wage disputes; wrongful termination; and unsafe work conditions.[34]

While both labor and employment laws attempt to humanize workers, a *race-to-the-bottom* mentality adopted by governments, labor suppliers, and MNCs alike has created a pervasive culture of indifference in the workplace. Quality standards, worker safety, and labor costs are too often sacrificed in exchange for industry or tax revenues, especially in competitive markets.[35]

With this norm of indifference entrenched, as long as profits take precedence, the humanity and rights of workers will be compromised, and domestic labor and employment law will cease to be effective. Ultimately, the authority and enforcement of labor and employment law is dependent on dismantling and replacing this with a more modern mindset most associated with the Global North. This may require greater attention and engagement with the aforementioned UN ILO.

[33] International Trade Union Confederation. ITUC Global Rights Index 2019.
[34] Employment Law vs. Labor Law.
[35] What Is the Race to the Bottom?



Part 3: The Way Ahead?

3.1 Money Always Talks Loudest

Monetary aid is the "obvious" solution to the issues impacting developing nations. However, it should be acknowledged that the presence of MNCs in the Global South as a source of "aid" has ultimately fostered and worsened the Global South's economic dependence on the Global North, "neo-creating" systems of colonial-tendency power in the process. The following discussion addresses how local to international communities can address not only worker exploitation and enslavement but also take other forms of aid into consideration as a shorter-term solution.

World-renowned American economists Jeffrey Sachs and William Easterly have debated the most optimal ways to provide aid to developing countries, with Sachs developing the *Planner* approach and Easterly developing the *Searcher* approach.

- *Sachs's Planner approach* is a top-down view of aid distribution where poverty in developing countries can be "alleviated" by donations from developed countries, with Sachs arguing, "If rich countries increased their foreign aid to roughly $150 billion a year, the world could eliminate extreme poverty by 2025."[36] Further, "aid flows are often small and unpredictable, while hundreds of small-scale aid projects eat up the time and attention of overstretched and impoverished governments."[37] The *Planner approach* focuses on the "volume of foreign aid."[38]
- *Easterly's Searcher approach,* in its avoidance of the repetition of outside colonial "intervention," comes at the problem from the perspective of aid focused on localized and distributed solutions more tailored to the people and communities being impacted and emphasizing the *Searcher's* ability to "adapt to local conditions" rather than try to force "ready-made" solutions created from outside local environments.

In conjunction with SDG 8, "the promotion of sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all,"[39] the bolstering of domestic industry by local populations themselves arises as a solution that ends up combining both Sachs's and Easterly's approaches.

In particular, local group lending and microfinance loans give "outsiders" the opportunity to accommodate local entrepreneurship while maintaining the cultural/social structures of the local community.

3.2 A Microlending Solution?

SKS Microfinance is a for-profit company that makes small loans to rural women across India, with women repaying their loans in weekly installments ranging from 20 USD to 250 USD. Although not directly from these local communities, SKS loan officers oversee social systems of "joint-liability," where the women hold each other accountable for paying off the loan.

In comparison to borrowing from relatives/friends, loan sharks, and government-funded "self-help" groups, SKS has provided women with money borrowing and lending experiences without the risk of corruption or debt due to high interest rates; SKS interest rates are the lowest in the world among microfinance agencies at 19.5 percent.

[36] *Planners & Seekers.*
[37] *GENED 1011 Notes.*
[38] *Planners and Seekers.*
[39] Goal 8: Decent Work and Economic Growth.

The existence of such domestic microfinance agencies is a model that can be adopted by the larger international community, especially those in the nonprofit sector, as a method of targeted aid that not only provides monetary assistance but, in the process, will encourage the development of independent economic infrastructure.[40]

3.3 A New Task for Blockchain's Promise for the Unbanked?

"A new of wave of fintech startups believe blockchain can help microfinance deliver on lofty promises. Billed as a silver bullet that could lift the poor out of poverty since the mid-2000s, microfinance, or the use of small loans to boost the unbanked, has failed to take off for various reasons—namely, a lack of transparency and the existence of middlemen that blockchain is said to eliminate" (Coindesk, Stanley 2021).

3.4 India's G20 Agenda

India's G20 Agenda mirrors the sentiment of building a domestic industrial economy with an articulated focus of "One Earth, One Family, One Future,"[41]upholding a foundational principle of valuing all life and its contribution to Planet Earth and the wider universe. India's G20 priorities include the following:

1. **Green Development, Climate Finance, and LiFE:** Introduction of the LiFE *(Living Intentionally for Excellence)* movement, which promotes environmentally conscious practices. And is based on India's sustainability traditions. It's fundamentally a circular or "doughnut" economy approach to economic and ESG development.
2. **Accelerated, Inclusive & Resilient Growth:** Focus on areas that have the potential to bring structural transformation, including supporting small and medium-sized enterprises in global trade, promoting labor rights and welfare, addressing the global skills gap, and building inclusive agricultural value chains and food systems.
3. **Accelerating Progress on SDGs:** Recommitment to achieving the targets set out in the 2030 Agenda for Sustainable Development, focusing on addressing the impact of the COVID-19 pandemic.
4. **Multilateral Institutions for the Twenty-First Century:** Efforts to reform multilateralism and create a more accountable, inclusive, and representative international system fit for addressing twenty-first-century challenges.[42]



[40] GENED 1011 Notes.
[41] G20 Leaders' Summit 2023.
[42] G20 India 2023.

The Group of Twenty (G20) is the premier forum for international economic cooperation. It plays an important role in shaping and strengthening global architecture and governance on all major international economic issues. Under its umbrella are eight critical topical groups. The context of this chapter, which relates to economic development matters, is Business 20 and Startup 20 Engagement Groups.

1. **Business20 Task Forces/Action Councils and Objectives**

   a. **Financial Inclusion for Economic Empowerment:** "The gaps in financial inclusion have widened post-pandemic, especially for developing and least developing countries, as well as for micro, small and medium-sized enterprises. Developing a framework for financial inclusion to create the right environment for innovation in the financial sector while ensuring protection for both businesses and customers in light of the emerging regulatory challenges pertaining to digital finance is imperative."[43]

   b. **ESG in Business:** "In view of the growing significance of the industry to adhere to… environmental, social and governance [ESG] standards, support…the adoption of ESG in business operations must be promoted."[44]

   c. **Inclusive Global Value Chains (GVCs) for Resilient… Trade and Investment:** "Recent developments in the global arena have accentuated the vulnerabilities of supply chains and highlighted the imperative for a smooth and efficient flow of goods and services that is impervious to…disruptions…. The development mission, particularly for least-developed countries that are most at risk with limited access to critical assets, must aim at building…resilience to structural economic shocks arising from supply chain disruptions. Nations must focus on ensuring that trade and integration into global value chains acts as a potent instrument of growth for all countries."[45]

2. **Startup 20 Task Forces and Objectives:**

   a. **Finance:** "*Increase access* to capital for startups by providing financing and investment platforms specifically for early-stage startups; *broaden* the array of financial instruments available to startups; *create* pitching and networking opportunities for startups with the global investor community; *build* suggestive frameworks that could be implemented in emerging ecosystems for building investment capabilities; *provide* a framework built upon best practices for global investors to fund startups across G20 member nations."[46]

   b. **Foundation & Alliances:** "*Harmonize* the global startup ecosystem through consensus-based definitions; *promote* a global community of knowledge sharing among the startup ecosystems; *bridge* the knowledge gap between the startup ecosystems of G20 member countries and emerging economies through partnerships."[47]

   c. **Inclusion & Sustainability:** "*Increase* support for women-led startups and organizations; *Promote* startups working on making communities more inclusive; *enable* more investors to invest responsibly in startups built upon sustainable practices; *encourage* mentorship support to the startup ecosystems of the G20 member countries and emerging economies; *promote* startups working on SDGs in areas of global interest."[48]

[43] B20 India 2023: Priorities.
[44] B20 India 2023: ESG in Business.
[45] B20 India 2023: Inclusive GVCs for Resilient Global Trade and Investment.
[46] Startup20 India 2023: Finance.
[47] Startup20 India 2023: Foundation Alliances.
[48] Startup 20 India 2023: Inclusion Sustainability.

India's G20 agenda upholds sustainability as the foundation of the financial efforts outlined by the Business20 and Startup20 Engagement Groups. In accordance with the LiFE movement, sustainability practices extend from the individual to the international community, emphasizing that these practices are attainable not only for the Global North and the G20 countries but also for the Global South and developing countries through partnership. In conjunction with sustainable development, meeting SDGs goals is an overall priority of the India G20 and is incorporated into business and startup initiatives. The shift from profit to inclusivity and acknowledgment of planet Earth as the focus of development fosters the creation of a more human-centered economic infrastructure.

The transition from MNC-reliant economic systems in the Global South to ones that are diversified and inclusive of, if not significantly reliant upon, domestic industry begins with strengthening the existing infrastructure to benefit the local populations who provide the workforces for MNCs.

The enhancement and protection of supply chains and workers' rights will provide necessary financial and social mobility to participate in domestic, regional, and global markets. Shifting to human-centered economic infrastructures will require viewing laborers in equal standing as labor suppliers and those within the MNC hierarchy and the perspective of workers as contributors to both local and global economies rather than as a means to amass wealth.

The perspective of the developing world, in general, is that more than resources are to be controlled, whether that be labor or extractive raw material, it will be realized as developing countries become more economically self-reliant and diverse, namely through entrepreneurship, as discussed above.

The Global North's advocacy for independent and cooperatively/collaboratively controlled or self-controlled industry in the Global South provides targeted and effective aid addressing issues according to local populations' needs and innovation initiatives.

3.5 The End of Neocolonialism Demands a New Worldview Paradigm

The partnership between the Global North and South in the education, investment, and mentorship of startups directly counteracts the myopia of neocolonial practices, especially the highly prevalent view of the Global South and its residents as needing to be "saved" by the Global North.

While domestic industry can be developed through local populations with financial access, it remains crucial for those who are still dependent on MNCs and the Global North for employment opportunities to be protected from exploitation. While the host and labor-supplying countries take responsibility for workers' rights and protections through the conception and enforcement of employment and labor laws, MNCs and respective labor organizations, audits, and clauses must take accountability through corporate governance, policy, and regulatory rules.

Organizations and principles such as the previously mentioned ILO, the OECD, and the UN Guiding Principles on Business and Human Rights serve as premises for the third-party organizations and clauses directly monitoring the behavior of corporations, including NGOs, such as the Fair Labor Association (FLA), Global Social Compliance and Worldwide Responsible Apparel Production and clauses such as Model Contract Clauses (MCCs) and Corporate Social Responsibility (CSR) clauses.

While these regulatory frameworks and bodies all exist, the question remains: why are such "social audit mechanisms" not transparent and effective in mitigating neocolonialist exploitation in the twenty-first century?

As of 2009, the mechanisms conducted by the frameworks listed above have been unable to thoroughly combat poor labor standards due to the degree of separation between multi- and transnational corporations and their "on-the-ground" environments, pressures from consumers and commercial customers, and the disproportionate gap between the number of industrial workplaces and available monitoring agents or enforceable reporting requirements.

Initially, in-house labor and employment code monitors functioned as the bridge between MNCs and labor suppliers. However, distance and inconsistency furthered the unreliability of reports and required additional third-party examination by NGOs. Despite these additional regulatory or advisory parties, the structure of industrial workplaces, specifically their fast-paced and extensive nature, the impact has been limited.

Once again, the *race-to-the-bottom* avoidance philosophy, amplified by customer demands, has "justified" the sacrifice of labor standards. "Manufacturers' ability to hire and fire flexibly, to force excessive overtime and speedups, and to pay low-wage rates *(or not pay at all)* are intrinsic to competition over low-profit margins in supply chains driven largely by Global North buyers.

Using modern inventory tracking technologies, such as bar codes, QR codes, and other monitoring and control mechanisms, retailers manage inventory fluctuations through often smaller, just-in-time ordering from manufacturers, thereby pressuring their contracted suppliers to impose excessive overtime and non-standard employment practices.

The fast-paced nature of workshops also exists beyond means of production, being applicable to how laborers themselves are viewed, given that "the limits on code monitoring capacities in the garment industry are multiplied by the high incidence of short-term employment contracts and high supplier turnover." Short-term contracts and high supplier turnover maintain the outlook of humans as dispensable and create difficulties with tracking patterns of exploitation across labor supply chains as workers are being frequently replaced.[49]

The impact of consumer/customer demands on employment practices is multiplied when the number of factories and workshops is taken into account. As of 2009, "in the global apparel industry alone, there are 200,000 to 300,000 factories, and up to a million small workshops. "Furthermore, the major retailers whose supply chains are the main focus of codes of conduct in the global apparel industry represent a small proportion of total global garment sales." With growing accessibility to online shopping, especially through fast-fashion brands such as Shein and Amazon, consumerism has only skyrocketed these values, thus skewing the proportion of factories to monitor even more.[50]

As suggested by the "Working Group to Draft Model Contract Clauses [MCCs] to Protect Human Rights in International Supply Chains, American Bar Association Section of Business Law," consumers must also take accountability for their role in exacerbating violations in labor standards, given that the fulfillment of increasing demands will nearly always take precedence over worker rights, as discussed above, unless there are transparent monitoring of employment and labor regulatory codes. They explain, "Human rights violations at the supplier level are often rooted in the buyers' own purchasing practices, particularly by timing

[49] Corporate Social Responsibility and Environmental Management.

[50] Corporate Social Responsibility and Environmental Management.

demands, pricing pressures, and last-minute order changes and modifications, as well as a lack of due diligence—turning a blind eye—to human rights issues."

The working group presents MCCs 2.0 as a means of necessitating the protection of laborers, establishing a "contractual responsibility" for both buyers and suppliers to recognize and uphold the human rights of workers. "In these revised clauses, buyers commit to responsible purchasing practices while suppliers commit to responsible and ethical management of their workforce and their sub-suppliers. Crucially, both buyers and suppliers are required to engage in "human rights due diligence."[51]

Author's note: *do you trust Amazon and its peers to safeguard the labor and employment rights of their fast-fashion suppliers? What about Chinese-owned TEMU? What mechanisms do you think might be able to alter the buying behaviors of American teenage consumers of fast-fashion apparel? Social media influencers on TikTok?*

While revisions to regulatory clauses are one aspect of the solution, given that the upholding of the rights of workers is made obligatory, once again, the enforcement of these changes is the deciding factor in the overall efficacy of MNC regulation.

3.6 Strong ESG policy: the path forward?

Environmental, social, and governance (ESG) "is a framework used to assess an organization's business practices and performance on various sustainability and ethical issues."[52] The following table outlines the matters each facet of ESG entails:[53]

Environmental
- Energy usage and efficiency
- Climate change strategy
- Waste reduction
- Biodiversity loss
- Greenhouse gas emissions
- Carbon footprint reduction

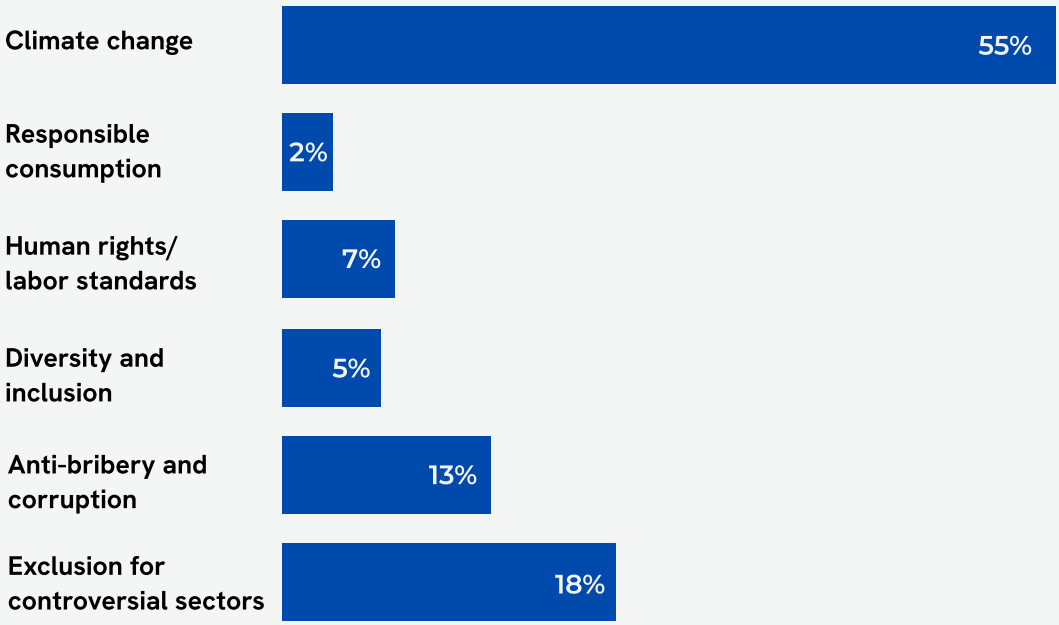
Social
- Fair pay and living wages
- Equal employment opportunity
- Employee benefits
- Workplace health and safety
- Community engagement
- Responsible supply chain partnerships
- Adhering to labor laws

Governance
- Corporate governance
- Risk management
- Compliance
- Ethical business practices
- Avoiding conflicts of interest
- Accounting integrity and transparency

Among the three facets of ESG, social is the least addressed. A 2021 ESG Survey Report was conducted by Macquarie Asset Management, a unit of the MNC, Macquarie Group, Sydney, Australia. In the survey, it was found that responsible consumption, human rights/labor standards, and diversity and inclusion were the areas least prioritized by corporations, as shown in the survey below:[54]

[51] Model Contract Clauses to Protect Human Rights in International Supply Chains.
[52 & 53] Environmental, Social, and Governance [ESG].
[54] MAM ESG Survey Report 2021.

When considering ESG, which of the following areas does your organisation currently prioritize the highest?



Corporations' consideration of ESG standards raises the question of what motivates them to improve these modern business practices. While altruism may be involved in corporations' decision to adopt robust ESG frameworks, profits always recur as a primary motivator, given that investment funds increasingly use ESG standards to help guide whether a corporation/business should be a qualified fund investment.

The social facet of ESG comprises matters discussed throughout the chapter, which were ultimately exchanged to maximize financial gain. To "encourage" corporations to consider ESG standards, the monetary reward for change must be understood to be greater than the financial gains (and business risk) for neglecting human and workers' rights and actively perpetuating their exploitation.

With greater emphasis on workers' rights and protections within the international business community, particularly on the part of investors, corporations may become more involved in self-regulation, ensuring that labor standards are being met, regardless of distance from the host country or the magnitude of supply chains.



It was an old story that was no longer true…Truth can go out of stories, you know. What was true becomes meaningless, even a lie, because the truth has gone into another story. The water of the spring rises in another place.

—Ursula K. Le Guin (p. 145)

We cry shame on the feudal baron who forbade the peasant to turn a clod of earth unless he surrendered to his lord a fourth of his crop. We call those the barbarous times. But if the forms have changed, the relations have remained the same, and the worker is forced, under the name of free contract, to accept feudal obligations. For, turn where he will, he can find no better conditions. Everything has become private property, and he must accept or die of hunger.

—Peter Kropotkin

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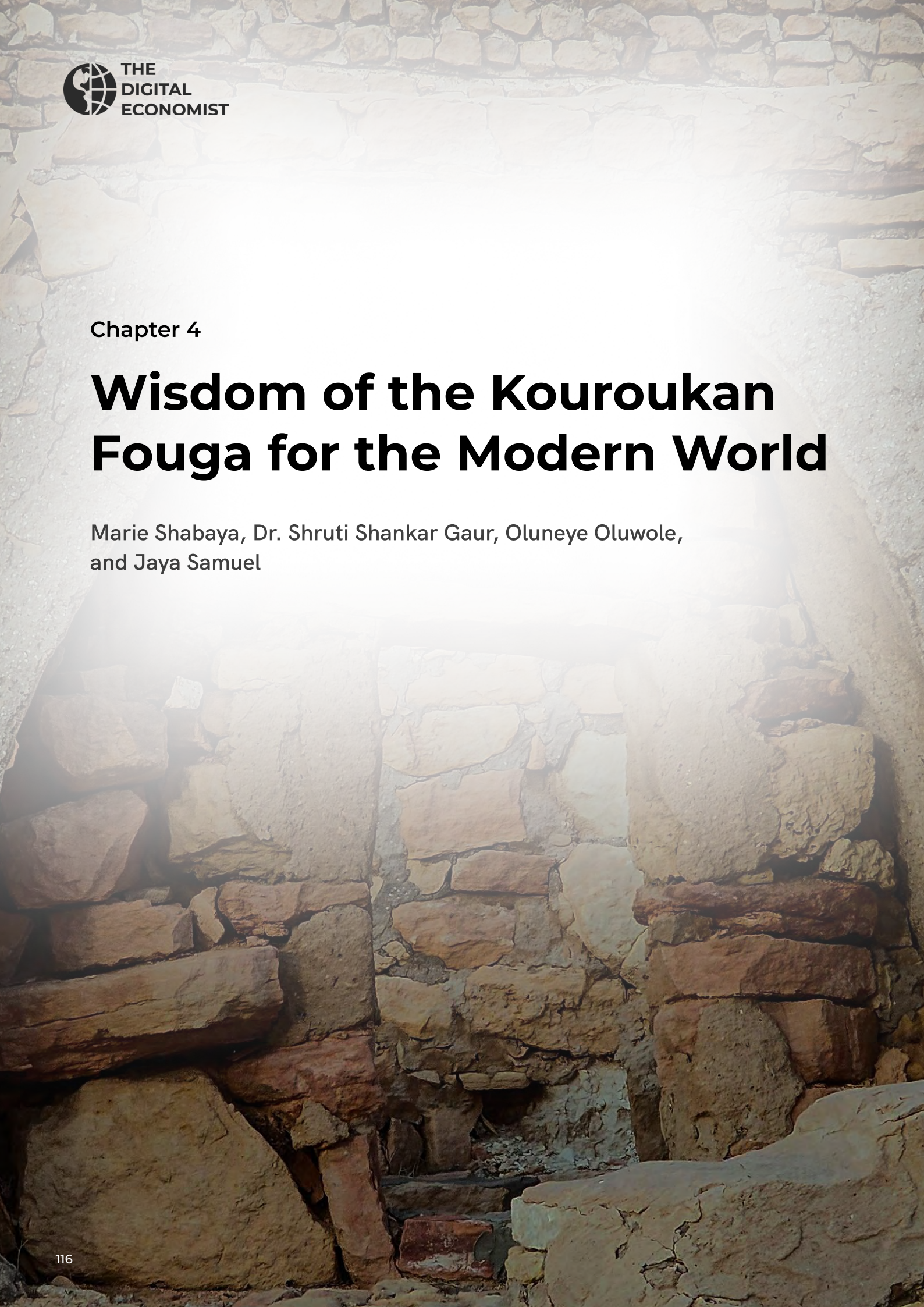
Chapter 4

Wisdom of the Kouroukan Fouga for the Modern World

Marie Shabaya, Dr. Shruti Shankar Gaur, Oluneye Oluwole, and Jaya Samuel




Can lessons from the distant past pave the way for a new social contract drawn for the age of digital innovation?

Setting the Scene

Often cited as the world's oldest constitution, the Kouroukan Fouga —the Manden Charter— is humankind's first enduring constitution. In its Middle Ages time frame, it was remarkable for its sense of equity, inclusivity, and individual and collective social responsibility of all people. It set a path to experiencing freedom from fear and want, with dignity, in community, and harmony with one another and the natural world. It serves as an early example of how human rights, gender equity, and environmental stewardship can serve as mandated principles of governance.

The Kouroukan Fouga was the resultant charter agreement established at a meeting of West African kings of the ethnolinguistic Mandé groups to form the Mali Empire (c.1236 CE), following the epic Battle of Krina (c.1235 CE), a decisive victory for the Mandé king Sundiata Keita, against the Sosso king Sumanguru Kanté. The battle established Sundiata Keita's leadership over all of West Africa and the largest African empire of the period.

Sundiata (the historical basis of the Lion King mythology) dictated the oral charter to the kings of the Mandé groups of the Niger-Congo region conquered at Krina. Eventually, epic would be pieced together and documented by Griot wisemen, poets, musicians, and storytellers. In 2009, the Kouroukan Fouga was added by UNESCO to the Representative List of the Intangible Cultural Heritage of Humanity.

As the world faces various complex challenges requiring collaborative, inclusive solutions, the Kouroukan Fouga serves as a reminder of the potential for diverse communities to come together to create a shared vision for the future. This constitution from the Middle Ages emphasized the importance of human rights and gender equity across class lines by underscoring that all have a stake in community well-being, a topic particularly relevant today.

The Kouroukan Fouga, thereby, presents us with a worthy starting point from which to explore the need for a new social contract—one that that prioritizes human rights, economic equity, and communal responsibility for environmental stewardship. It is a reminder from antiquity that our challenges aren't insurmountable. By studying the Kouroukan Fouga (and other historical examples of collective agreement and action), we can understand how diverse communities worldwide can work together to create positive change and build an enduring legacy for future generations.

This legacy of wisdom drawn from the Kouroukan Fouga in the contemporary age of digital innovation may provide a renewed sense of how local and global communities can come together to inspire a necessary transformation. This becomes particularly relevant when viewed within the context of the SDGs, which require local-to-global cooperation and concerted collaborative effort by all parties.

Thus, this chapter examines this significant historical artifact as a basis for the need for a new social contract that supports and furthers intercultural exchange in the digital globalization era. We inquire into how economic equity can drive the journey from charity to equity and dignity and accelerate progress on achievement toward the United Nations Sustainable Development Goals (SDGs) through a new understanding and to reach the objectives of "the 2030 Agenda for Sustainable Development."

1. Why the Kouroukan Fouga May Be of New Global Significance?

1.1 African Wisdom

African Wisdom isn't only perennial; it has quietly woven together the continent's intricate and highly structured civilizations for centuries. It remains the invisible past, present, and future of many African peoples, regardless of creed or culture. Chief among this cultural sagacity lies the Kouroukan Fouga.

Unlike other literature from oral storytelling traditions of its genre, the Kouroukan Fouke has survived time's vicissitudes to have a guiding hand in shaping many African cultures and has also impacted the African diaspora. All have subscribed to its tenets at one time or another, likely as subconsciously as the air they breathed.

At its peak, the Mali Empire stretched from the coast of modern-day Senegal to the semiarid hinterlands in today's Mali Republic in the heart of the Western Sahel, the transition zone between the Saharan Desert and the sub-Saharan region. It was the largest West African Empire, and the provisions of Kouroukan Fouga guided the governance of over 50 million people in the vast area.

This illustrates several strengths which can be directly applied to the modern global era. Social cohesion was promoted in the Mali Empire because Kouroukan Fouga—while a governing toolkit—was used to inspire broader cultural acceptance and movements. Even before that, the declarations of its tenets were rooted in the agreement among several Mandé medieval kings in a peacemaking treaty following military conquest.

1.2 A Product of Conquest

A product of conquest, the Kouroukan Fouga is both a physical site[1] and a historic event. In much of that medieval world, the destinies of nations were decided by words willed by nobles and wise men in agreement after wars. In the case of the Kouroukan Fouga, the edits that would eventually govern the Mali Empire were spoken directly by Sundiata Keita,[2] the founder or Maghan (king of kings) of the Mali Empire.

Among his audience were individual Mandé kings who agreed, as part of the charter, to rule under his supreme government. Following the pattern of the oral traditions of the region, these proclamations were remembered by toponyms; that is, they were named after the place in which they were first spoken. In this instance, a territory adjacent to the Niger River Basin known as Ka-ba, located near the borderlands between present-day Guinea and Mali, in the city of Kangaba, in the south-western Republic of Mali.

Ka-ba, as the site for the Kouroukan Fouga, is quite significant. Before Sundiata's successful conquest, it was a vassal state of the prosperous Ghana Empire (c. 830–1235 CE—no relation to modern Ghana), which collapsed in the twelfth century. In the final conflict that established him as Maghan, Sundiata and his forces defeated the Sosso King, Soumaoro Kanté, who had himself come to supremacy by conquering the former capital of the Ghana Empire, Koumbi Saleh (now in modern-day Mauritania).

This established Sundiata Keita as the principal inheritor of the defunct Ghana Empire of four centuries duration, along with all its prominent trading routes, allowing him to build his own on the remains of the former. Ka-ba would later become a core province of the Mali Empire.

[1] https://ich.unesco.org/en/RL/manden-charter-proclaimed-in-kurukan-fuga-00290
[2] https://www.worldhistory.org/Sundiata_Keita/

At Ka-ba, the empire was also divided by Sundiata. He appointed lower kings to his Court, including his childhood friend Kamandjan, the king of Sibi, who organized the great assembly, or Gbara, at which the Kouroukan Fouga was declared. All the former ruling families had their kingdoms returned to them, and in exchange, they pledged allegiance to Sundiata as Maghan.

1.3 Division of the World

"Division of the World" is what the event thus became known as in Mali lore, when the gathering of kings and courts adopted the words spoken at the Gbara at Koba—and it became universal law for their vassal kingdoms. Thus, Kouroukan Fouga is remembered as a moment in time when Sundiata divided the world (as it was then known to the people of the ancient Mali Empire).

Its precepts (or statutes, in today's terms) were then orally dispersed to all corners of ancient Mali and eventually to the world beyond by a network of Griots working at the instructions originating with the Griot to Sundiata of the empire's minor kings.

The Kouroukan Fouga charter that survives today is a literary reconstruction, arduously pieced together by Griots, the carriers of those "customary law" traditions. The initial declarations made at Ka-ba were recorded, by way of memory work, by Sundiata's named personal Griot, Balla Fassèkè, the first of the Kouyaté line, which still exists today. His line runs in parallel to that of the Maghan.

During the Gbara at Ka-ba, Balla Fassèkè Kouyaté was promoted to Grand Master of Ceremonies of the Empire. As a result, his clan line was also chosen to serve as oral historians and advisors to the royal line of Mali for time immemorial.

It was his direct descendant, Djeli Mamoudou Kouyaté, who was the Griot responsible for the most recent retelling of the Epic (poem) of Sundiata and the first Kings of Mali, which is considered the national epic story of the modern-day Republic of Mali.

This oral history and charter "law" was first pieced together and translated into Arabic in the 1800s and subsequently into French and English in the 1960s.

1.4 The Laws of the Kouroukan Fouga

The laws of the Kouroukan Fouga, in its most recent incarnation, are a collection of forty-four articles organized into four major sections: Social Organization, Property Rights, Environmental Protection, and Personal Responsibility. The very first article of this ancient constitution immediately addresses the issue of statecraft concerning the nascent empire.

1.5 Clan and Caste

The Kouroukan Fouga announces itself by dividing ancient Malian society into key social and functional groupings or a clan-and-caste system. It establishes:

- Sixteen clans of *quiver carriers*, or the Djon-Tan-Nor-Woro, formed a highly organized warrior class charged with defending the empire;
- Five clans of *marabouts*, or the Mori-Kanda-Lolou (holy men, monks, or hermits), the "guardians of the faith," which, in Mali, was predominantly Islam;
- Four clans of *Nyamakalas*, or people of caste, held highly regarded artisan tradesmen, such as blacksmiths, tanners, and carpenters.

A key sub-caste of the *Nyamakalas* were the *Djeli*, or *masters of ceremonies*, the Griots of the Empire, whose duty it was to preserve the history of the empire, including its kings, battles, and the Kourakan Fouga, passing them down through generations via oral history storytelling, poetry, and

song as no Indigenous linguistic system survives from this African civilization. *(Griot is a French colonial origin term dating to the seventeenth century.)* Yet, Griots remain active in Mali and beyond its borders in West Africa today, practicing the ancient art of *Jeliya*, most often associated with the twenty-one-string musical instrument.

1.6 Wisdom vs. Governance System

The key to understanding the Kouroukan Fouga is that, far from being seen as a political construct or a governance system, it was understood to be Wisdom. It located individual members of what was then a disparate empire within nested social hierarchies.

1.7 Family as Core

Family, as core to the Empire's social organization, was positioned to endure across the generations. For example, the *Maghan* family was established as the ruling dynasty (*Article 8*) to be held accountable by the service of Balla Fassèkè Kouyaté's family, the chief of all *Djeli* or *Griot* in medieval Mali *(Article 2 and Article 43)*. The agreement of the lower nobles and feudal chiefs is recorded as part of the Kouroukan Fouga's history and ratification.

1.8 Children and Their Education

Children and their education were recognized as an essential facet of the empire's sustainability and were a duty of fatherhood placed on all males *(Article 9)*. Consequently, the business of raising children was extended as a societal mandate *(Article 4)*, and, at the same time, the rights of all citizens were enshrined in their right to life *(Article 5)*, and respect for marriage, kinship, and community *(Article 40)*.

1.9 Respect as the Bedrock

Respect as the bedrock of all human interactions, beginning with the rights accorded to one's in-laws *(Article 19)* and those under one's employ *(Article 20)*.

1.10 Speaking Truth to Power

The *Nyamakalas*, who commanded much respect by their caste, were mandated to speak truth to power *(Article 2)*. Religious leaders were also respected as a tertiary duty *(Article 3)*. This is reinforced by the proclamations of *Article 7*, which mandates respect across all genres of relationships, both formal and informal.

Responsibility was a crucial part of these instructions, as pointed out in the counsel against laziness in *Article 6* and those observed in *Article 44*.

1.11 Women's Seat at the Table

Another singular attribute of the Kouroukan Fouga was the inclusion of women by statutory mandate *(Article 16)*. Women were to be represented at all levels of society, including those of government, and were never to be offended *(Article 14)*.

Married women were also to be considered with nuanced directives on their treatment *(Articles 11 and 15)*. The role of women was so ingrained in ancient Malia Empire society that it is widely believed that the thirtieth seat at the *Gbara*, which carried the Kouroukan Fouga's proclamation at Ka-ba, was reserved for a woman as a political monitor.[3]

1.12 Environmental Stewardship

Environmental stewardship received careful attention in the Kouroukan Fouga. Hunting was

[1] https://ich.unesco.org/en/RL/manden-charter-proclaimed-in-kurukan-fuga-00290
[2] https://www.worldhistory.org/Sundiata_Keita/
[3] http://www.absoluteastronomy.com/topics/Kouroukan_Fouga

only to be performed by specialists in the Mali Empire of the Middle Ages, and they were accountable to a paramount leader *(Article 37)*. Hunters from that group were revered as people endowed with spiritual powers over nature.[4] Consequently, they were the only ones allowed to practice hunting on behalf of the community.

Slash-and-burn agriculture, a practice that remains in use today, was frowned upon. Farmers were implored to survey trees and their fruit before clearing land by fire *(Article 38)*.

Finally, animal husbandry was directly addressed with an ordinance on the treatment of domesticated animals such as goats, cows, and sheep, which were to be tied during cultivation periods and only left to roam once harvest season ended, hence protecting the crop *(Article 39)*.

1.13 What Can We Learn from the Kouroukan Fouga Today?

Crawling through these annals of time, myriad lessons become apparent that can be gleaned from the Kouroukan Fouga and applied by modern leaders, policymaker, and governance practitioners.

Our study attempts to distill lessons relevant to these groups across five critical social framework sectors: climate action, gender, cultural awareness, conflict resolution, and technology and innovation.

These frameworks can bolster existing global policy infrastructure, such as the Sustainable Development Goals (SDGs), the Universal Declaration of Human Rights (UDHR), and the Convention on the Rights of the Child.

The philosophy of the Kouroukan Fouga can also inform various policy working groups at national, regional, and international levels looking to design ordinances on the regulation of the digital world and new technologies affecting our ways of life (e.g., artificial intelligence [AI], data sovereignty, blockchain, tokenization, cryptocurrency, etc.). Furthermore, the wisdom of the Kouroukan Fouga holds potential in peacemaking interventions worldwide, particularly in zones with developing or historical conflict where violence has escalated due to limited access to land, water, or other scarce natural resources, for instance.

We invite analysts' attention to these articles, such as the treatment of human life, environmental protection, and gender equity. These prevailing issues remain politically salient. The longevity and success of the ancient Mali Empire point to not only the wisdom legacy of the Kouroukan Fouga but also to the endurance of its wisdom.

At this current juncture, we have a unique opportunity *(perhaps an obligation)* to absorb these lessons as we chart a way forward as the human family and, equivalently, as diverse members of the global human *(and life)* community. As the foreword of this study iterates, the applications of Kouroukan Fouga provisions are boundless and can find relevance at both a personal level and within a broader international policymaking context.



[4] https://www.newframe.com/from-the-archive-the-mande-charter-of-1222/

2. Medieval Axioms in a Modern Context

2.1 Global Climate Crisis

The global climate crisis and its consequences are, as a matter of science, a result of human activities over the past two centuries, particularly massive industrialization in the West powered by fossil fuels and their emissions, principally CO_2 and other greenhouse gasses (GHGs).

While there's growing urgency for climate action by various public and private sector stakeholders around the world, the reduction and elimination of GHG emissions have reached the state where, without a massive shift in human consciousness and cultural wisdom as a mandate for change, achieving a healthy, prosperous, thriving sustainable social order may not be possible.

2.2 Kouroukan Fouga in the Anthropocene

The Kouroukan Fouga in the Anthropocene, the still-unofficial moniker given the geologic epoch, speaks to the overwhelming domination by one species over all other life, all dependent upon the health of the atmosphere, the soils of the earth's surface, freshwater, the oceans, and polar ice caps.

We live in the period of the Sixth Great Extinction (also known as the Kill Off) of species. Unlike previous extinction events caused by natural phenomena, the sixth mass extinction is driven by human activity, primarily the unsustainable use of land, water, and energy, and climate change due to GHG emissions from continuous and still-largely unchecked global socioeconomic activities. The result is an ecological and social imperative steeped deeply in the culture's wisdom.

Today, climate change is, quite simply, an existential threat to the fundamental right to life and demands the fullest intention of all world leaders, stakeholders, and policymakers. It represents a responsibility of all people—individuals, families, and communities.

The medieval Kouroukan Fouga charter contains principles and provisions to help address the current climate crisis. The solution isn't to be found in specifics but in the wisdom of the intention. Part of this is its ordinances on the equitable distribution of resources, enshrined as a right of property among families and communities.[5] The Mali Empire of the Middle Ages was an industrious one,[6] but one steeped in individual and communal responsibility.

Much like land rights in the modern age, individuals and their families had the right to land ownership, but this was an earned privilege. Property had strict laws of transfer: One had to either purchase property directly and have it donated or acquired through the exchange of other assets of equivalent value, including direct labor or inheritance, within recognized rules. As such, these environmental stewardship stipulations covered all productive land.

2.3 Through a Present-Moment Lens

Reading the Kouroukan Fouga through a present-moment lens, the charter's mandates on environmental stewardship emphasize the responsible use and conservation of natural resources while recognizing the importance and need for sustainable resource management.

As an illustration, only a particular small section of the population was mandated to hunt on behalf of all communities.[7] This demographic formed a small slice of society. It was believed by the Mandé people to have a deep understanding of the natural world and were accountable to their leader,

[5] **Article 32:** There are five ways to acquire property: buying, donation, exchange, work and inheriting. Any other form without convincing testimony is doubtful [Kouroukan Fouga].
[6] **Article 6:** To win the battle of prosperity, the general system of supervision has been established to fight against laziness and idleness [Kouroukan Fouga].
[7] **Article 37:** Fakombè is nominated chief of hunters [Kouroukan Fouga].

who was, in turn, responsible to the minor kings and the Emperor. Hence, wildlife was kept in balance. Likewise, only those with direct access to land, through ownership, had the option of rearing their own livestock for personal consumption or value trade exchange.

This latter group was also subject to regulation.[8] Such domestic livestock were to be kept within enclosures during the seasons of agricultural cultivation (crop farming). Kouroukan Fouga's social organization recognizes farmers of different types—for example, those who kept animals and those who grew crops.

To ensure harmony between the two farming types —crop-raising farming and livestock farming—the constitution mandated that livestock were to be kept from open grazing until the harvest season had concluded, protecting the crops from being destroyed by cows, goats, sheep, etc.

Drawing strict distinctions between these two economic activities ensured peace among individuals, families, neighbors, and communities, while allowances were made to ensure food security. This would have also established a cadence of harmony and balance between human activities and the natural environment, a *wisdom* mainly missing in our post-industrial era.

2.4 Cultural Awareness, Conflict Resolution, and the Griots

Cultural awareness, conflict resolution, and the Griots were all foundational mandates of the Kouroukan Fouga, a culture that, again, achieved its broad dissemination and proliferation of law and custom throughout the empire through the officially renowned Griot tradition. Historically, these men were gatekeepers of early constitutional and cultural knowledge and wisdom *(likely the well-may also provided welcome entertainment and respite)*. Griots played both a vital and pivotal role in song, and poem.

Their crucial role in the dissemination of social governance and cultural values, however, was to maintain a sense of steady *customary law* continuity and identity across their jurisdictional communities. Often described as living newspapers[9] by modern scholars, these gifted individuals were far more than poor traveling monks and minstrels, as they have popularly come to be portrayed. Instead, they were men of great learning and skilled storytelling. They held the historic annals of a peoples' traditions and customs, as well as the governmental principle mandates of kings.

Particularly in a multicultural society like that of the medieval Mali Empire, these very important subjects also played a diplomatic role. They were considered traveling emissaries, dispute-settlement negotiators, and peacemakers on behalf of their ruling monarchs. In fact, part of their training—beyond memorizing vast troves of ancestral history and reciting each episode without fault—includes methods of flattering the wealthy and resolving conflict within society.[10] Even in the modern era, this hereditary Griot clan continues to play its part in mediating disputes under law and custom and is often called upon as primary adjudicators in local conflicts.[11]

The bare bones of the Griot's mandate set out a defined set of special relationships institutionalized as part of civic duty; among them is the *sanankunya*, the *cousinage* or *joking relationship*. A long-standing tradition, mostly among the Mandé peoples and other communities of the Western Sahel, this social pact allows individuals, families, clans, and even kingdoms to enact a formal relationship with jovial *cousin-like joking* familiarity.

These groups would—as a matter of goodwill and custom—both resolve issues and deepen familial, neighborly, and community ties by the custom of trading warm insults—a practice not unlike *roasting* in our modern entertainment culture.

[8] **Article 39:** Domestic animals should be tied during cultivation and freed after the harvest. The dog, the cat, the duck and the poultry are not bound by the measure [Kouroukan Fouga].
[9] https://www.abhmuseum.org/about/what-is-griot/
[10] https://archive.nytimes.com/latitude.blogs.nytimes.com/2012/10/24/malis-storytellers/?ref=opinion
[11] https://www.usip.org/sites/default/files/resources/PWOct2006.pdf

That the significance of such relationships was so ingrained in the social fabric of the Mali Empire dates to the foundational Kouroukan Fouga ceremonies at Ko-ba, when Balla Fassèkè Kouyaté, the *Maghan's* personal Griot, was appointed Master of Ceremonies and Chief Mediator of the Empire *(Article 43)*, with a singular and crucial caveat, that he was to *joke with all groups,*[12] but a special responsibility to do so with the supreme ruler and his court.

Moreover, the institution of the *sanankunya* has been so historically impactful in what has been a conflict-prone region since the disintegration of the Mali Empire that it's already again in use as a peace-building tool by several civil society organizations working in the region.[13]

The Griot's role as diplomat is also enshrined in the Kouroukan Fouga, thus making them ideal mediators by virtue of their placement within the caste-and-class-based social governance order of the Empire. As part of the Nyaras, the talented of the Nyamakala caste, they were never to be offended.[14]

The Griots were useful to kings as effective functionaries because, despite their high skill and talent, they ranked lower than nobility, making them apt for service. At the same time, they were forbidden from marrying into the ruling class, making them politically neutral as diplomatic emissaries.[15] This implied that this hereditary clan was designed for cross-generational service to both the monarchy and their respective jurisdictions and all their communities within. Cementing their position and compounding a general custom of respect and tolerance across the empire, these envoys were protected[16] as per the dictates of the Kouroukan Fouga.[17]

2.5 Relating Contributions

Relating these functionaries and their contributions to the Mali Empire across its centuries, we can apply the wisdom of their craft to the modern age. By constructing policy frameworks that sanction and encourage mediation at the grassroots, local communities can be empowered in conflict resolution before issues become regional or even national crises. Appointing neutral parties within these areas who are knowledgeable of historical issues and cultural nuances can further support peace-building efforts whilst also endearing trust between parties in conflict.

Additionally, beyond a peace-keeping mandate, these third parties can also play the role of cultural stewards, recording and preserving the cultural heritage of indigenous populations, particularly those whose way of life is being threatened by rapid urbanization, cultural exploitation or resource exploitation[18] and depletion.

2.6 Gender and Empowerment of Women

Unique to its place in history, the Kouroukan Fouga crucially recognizes women's contribution to society. Gender equity, as we know it today, is carefully addressed by the tenets of this ancient constitution. In doing so, the architects of the government of the Mali Empire, from its thirteenth century formation, make bold assurances to all people of the empire—establishing cultural norms regarding the inclusive values of women unique to the Medieval era—in Africa and for the world at large.

Women are immediately addressed by the Kouroukan Fouga, following an edict to respect the Nyaras or the talented. They, too, are never to be offended as the mothers of society.[19]

[12] **Article 43:** Balla Fassèkè Kouyaté is nominated chief of ceremonies and main mediator in Manden. He is allowed to joke with all groups, in priority with the royal family.
[13] https://www.ohchr.org/en/press-releases/2012/08/committee-elimination-racial-discrimination-examines-report-senegal
[14] **Article 13:** Never offend the Nyaras (the talented) [Kouroukan Fouga].
[15] https://www.usip.org/sites/default/files/resources/PWOct2006.pdf
[16] **Article 25:** The ambassador does not risk anything in Manden [Kouroukan Fouga].
[17] **Article 24:** In Manden, do not maltreat the foreigners [Kouroukan Fouga].
[18] https://www.un.org/development/desa/indigenouspeoples/mandated-areas1.
[19] **Article 14:** Never offend women, our mothers [Kouroukan Fouga].

This is a key aspect of African societal norms, where, across several cultures, motherhood, as an identity, is often accorded a title of honor and veneration. In ancient Mali, it's clear that a similar system of social and interpersonal esteem was firmly in place. An ordinance of this kind is idiosyncratic to the secularity of the Kouroukan Fouga, which allowed for the treatment of gender to be separate from ideals drawn from prevailing moral, cultural, or religious standards.

Women, as a social grouping, were not only accorded customary respect but were also included in governing leadership throughout all levels of the Mali Empire.[20] It's believed that women served as political monitors and participated in the management of the empire's numerous industries.

Married women, too, were given due regard. The boundaries of the marriage covenant were to be respected, and women within those unions were not to be harmed or disciplined without a husband's consent.[21] This protected the affairs of those married, which were never to become a subject of public intrigue—maintaining harmony across the society at large while ensuring the sanctity of the marriage pact. Additionally, married women were also shielded from unwanted advances with specific instructions[22] on the treatment of women of influence as well as those who were married within one's personal network.

Analysis of this ancient constitution's wisdom on the recognition of women as both cultural and governance imperative makes a strong case for similar considerations in the contemporary age. At a time when debates on gender equity have produced limited, tangible solutions,[23] returning to the edicts of the Kouroukan Fouga may hold the keys to their resolution.

Women being respected as the default ushers in a cultural atmosphere that would inevitably welcome their contribution across all dimensions. For women to be respected, we must make a necessary assumption that their voice carried weight in thirteen-century Mali, a feat Western Europe would only achieve much later, at the turn of the twentieth century. Modern policy interpretations could build on this crucial facet, which translates well across cultural lines, to both ensure empowerment and full inclusion of women in the development of their economies and societies.

2.7 Technology and Innovation

Technology and innovation, reflective of the digital economy era, while potentially empowering, must be deployed in a manner that ensures just, equitable, and inclusive availability and application across all social strata. If any society's governance proves unable to do so, they're actively encouraging the digital divide between those empowered because of their ease of access to the digital technologies of innovation and those who have control over its availability and use to exploit people. In some cases, governments can even employ digital technology as a tool of domination and oppression over unsuspecting or uninformed citizens. Thus, it can represent a form of imperial neocolonialism.

Such digital-divide imperialism can be a covert form of subjugation.[24] By definition, this is the extension or exertion of power and influence by a country or corporation using technology. If we study the digital world around us, we're able to discern subtle hints of its application. For example, our world today is largely data-driven. Our movements, be it through using a ride-hailing app or seeking directions on a geo-positioning system (GPS), are recorded as

[20] **Article 16**: Women, apart from their everyday occupations, should be associated with all our management [Kouroukan Fouga]
[21] **Article 15:** Never beat a married woman before her husband has tried to correct the problem [Kouroukan Fouga].
[22] **Article 21:** Do not follow up with your constant attention the wives of the chief, of the neighbor, of the marabout, of the priest, of the friend and of the partner [Kouroukan Fouga].
[23] https://blogs.worldbank.org/governance/govtech-and-gender-equity-why-it-matters
[24] https://www.aljazeera.com/opinions/2019/3/13/digital-colonialism-is-threatening-the-global-south

personal data in various formats. Whether on social media or smartphone applications, we all leave a trail of data breadcrumbs. Hence, we're all traceable. In this way, the possibility of corporate or state power of control of data becomes a very pertinent reality.

Simply put, The shape of tomorrow will be decided by whosoever can establish a digital and data hegemony.[25]

2.8 Digital Equity

Perhaps a positive case study of equitable digital systems can be observed through India's celebrated digital public infrastructure: The India Stack, a unified digital payment system,[26] that eases the processing of day-to-day monetary transactions while encompassing within its domain the poor and under-banked, having access to the country's financial systems—a feat which traditional banking systems haven't achieved.

An observer of India's metropolises will find that even the street corner beggar has a mobile digital device and QR code! Similarly, the universal digital identity through the Aadhaar system by the Indian federal government maps every citizen-user through their digital footprint.

Public digital infrastructure is a means of equity, empowerment, and social and economic mobility for all individuals. India, through its example, paves the way with government-controlled digital tools, offering access to the digital world for all whilst simultaneously providing an opportunity for transparency as a test case for similar systems around the world.

However, it may prove difficult to replicate India's example, and the fact remains that many democracies refrain from such state-controlled transparency, as there is the threat of rent-seeking behavior, particularly as it concerns data owned by the state. When you have government scrutiny, control, and access, it can also lead to abuses of power.

In India, the Delhi-Sikh riots of 1984 are an example of first-data-driven communal riots after the assassination of Prime Minister Indira Gandhi. Data from the electoral rolls was retrieved to target the Sikh households in Delhi, leading to the most barbaric ethnic cleansing in modern Indian political history.

How can we ensure such incidents are not repeated in the future? How do we create a decentralized, human-centered citizen platform? How do we evoke a sense of civic literacy and responsibility among the people so as to prepare them for the tsunami waves posed by the current wave of AI? How do we ensure technology doesn't disempower and override humanity?

2.9 Wisdom of the Ages for Data Sovereignty in the Future?

The answers to these questions may lie in the wisdom of the Kouroukan Fouga. Encompassed within its edicts are hints on how we might approach the issue of data sovereignty in the modern era. Data, being a public good of the digital systems in which we now exist, means that its ownership is broadly undefined. While there have been international policy movements to ensure the protection of personal data, such as the GDPR in the European Union, in the developing world, these protections are still being addressed within national and regional policy frameworks.

A big step forward was taken by the African Union in early 2022 with the adoption of the African Union Data Policy Framework (AUDPF), a holistic approach to data governance and regulation structure covering both personal and non-personal data similar to the GDPR.

[25] https://www.penguinrandomhouse.com/books/539747/winners-take-all-by-anand-giridharadas/

[26] **Unified Payments Interface** (UPI) is an instant payment system developed by National Payments Corporation of India (NPCI). The interface facilitates inter-bank peer-to-peer (P2P) and person-to-merchant (P2M) transactions. It is used on Mobile devices to instantly transfer funds between two bank Accounts.

The Kouroukan Fouga notes that property without an identifiable owner automatically becomes communal property after a period of four years.[27]. Marrying this with the African principle of Ubuntu, a philosophy from the Bantu, a major ethnic group dispersed across sub-Saharan Africa, we can find a harmonious way forward. Ubuntu is sometimes translated as *I am because we are*, and *I am because you are*, thus intimating that human existence and the humanity of civilization are interdependent.

Consequently, cultural sensibilities across the continent naturally place the needs of the community above those of the individual. Thus, efforts and sacrifices made by individuals are for the sustainability of the wider community. An intervention, drawing from African wisdom, may be to encapsulate individual data under communal ownership, perhaps even under the patronage of the state or communities, for their direct, measurable benefit to the whole community. However, strict governance policies and regulations must be applied as to their use and commercialization to ensure that this actually happens. Likewise, if for commercialization, then all data owners equitably share in resultant revenues or other value benefits.

This principle may generally fall under the realm of Digital Public Goods (DPGs) now being advanced. Before we can build digital trust, we must ensure trust between people and a general respect for human rights, equity, inclusion, and dignity. The oxymoronic-sounding term "trustless" is meant for the digital age. What can we draw from the wisdom of Kouroukan Fouga to maintain the strength and continuity of historic social frameworks in the era of digital social disconnect in the very face of the most connected era in history? *(If we may permit ourselves to be so bold as to ask?)*

Can we, in this modern era, understand the significance of the embodied wisdom of the Kouroukan Fouga as a tool for human social development in the advanced digital economy era, even as we locate ourselves in the first chapter of what will prove to be the long cultural-transformation book of AI.

The essence of this long oral tradition lies in its definitions of citizenship and collective civic responsibility and benefit. The Kouroukan Fouga says every member of the community must ensure that the rights of others are fully observed and protected while performing one's own duties and enjoying one's own sense of dignity and equity and that mutual respect is the foundation of all social interactions.[28]

If we're able to evoke shared humanity, in not just ourselves but in others, as the wisdom of the Kouroukan Fouga instructs, we can make important strides toward building a social contract for the digital age that will, too, stand the test of time.

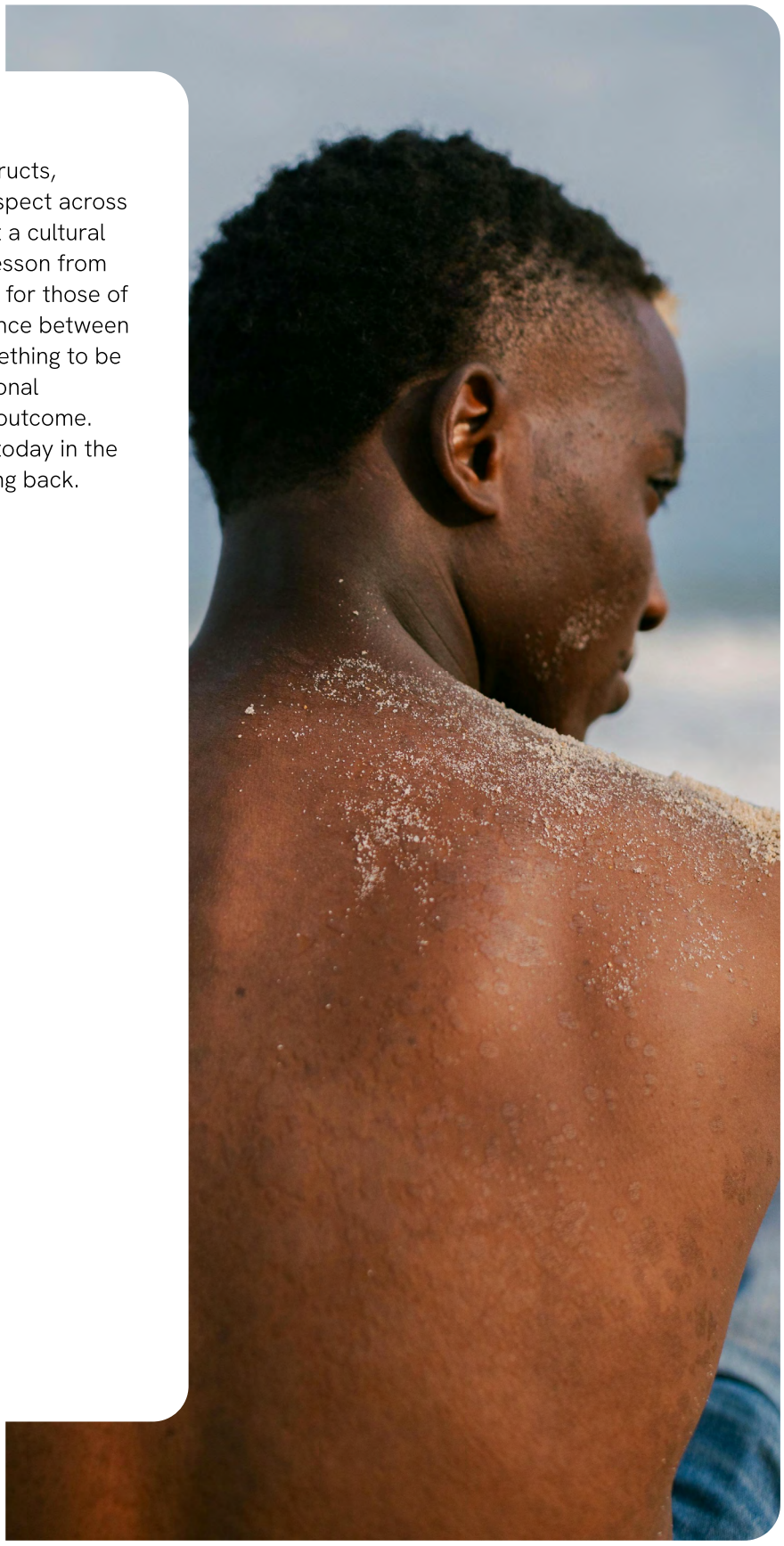
The hope of this perspective is that we both maintain and enhance our humanity not just because but in the full presence of the advance of machine learning and digital communication. As human beings, our worth extends far beyond what data and digitalization have to offer. Even if absorbed within its metrics, people are not data-driven commodities to be bought and sold to the highest bidder!

As the Kouroukan Fouga elucidates, human life, in all its dimensions, is to be respected and valued.[29] This includes the respecting of differing opinions, even as they may be contrary to one's own, which is also addressed by the wisdom of the world's oldest constitution.[30] Tolerance was the order of the day in Mali. In that light, perhaps we should reconsider our own temperaments in the present age.

With increasing digital progress, we have observed that diversity of thought is in danger globally.

[27] **Article 33:** Any object found without a known owner becomes common property only after four years [Kouroukan Fouga].
[28] **Article 23:** Never betray one another. Respect your word of honor [Kouroukan Fouga].
[29] **Article 5:** Everybody has a right to life and to the preservation of physical integrity. Accordingly, any attempt to deprive one's fellow being of life is punished with death [Kouroukan Fouga].
[30] **Article 7:** The sanankunya (cousinage or joking relationship) and the tanamannyonya (blood pact) have been established among the Mandinka. Consequently, any contention that occurs among these groups should not degenerate the respect for one another being the rule. Between brothers-in-law and sisters-in-law, between grandparents and grandchildren, tolerance should be the principle [Kouroukan Fouga].

As this ancient African constitution instructs, harmony is a direct consequence of respect across all social boundaries, and that makes it a cultural ideal to strive for. A present-moment lesson from Kouroukan Fouga serves as a reminder for those of us living in the digital age that coexistence between ourselves and the natural world is something to be worked for and achieved through personal sacrifice. Its principles are clear in the outcome. Perhaps, for those of us who are alive today in the digital era, the way forward is by looking back.





3. An Influential Legacy

3.1 A Traveling Dissemination Mandate

The potency of the Kouroukan Fouga's legacy was solidified by the portability of its wisdom. While its precepts were deeply rooted in the worldview of the Mandé people, the ethnic group that formed the ruling class of ancient Mali, its edicts were easily accessible to people of other cultural backgrounds due to the universality of its rationale. They spoke directly to the humanity of those they governed while providing a codified cultural foundation to build upon.

There is much evidence to suggest that storytelling, song, poetry, dance, craft, and art all serve to build, broaden and deepen social cohesion. The genius of the dissemination of the Kouroukan Fouga via the empire's Griot network was that it elevated the empire's political mandates into cultural ones, capable of instilling a sense of pride, identity, and belonging to its adherents. Therefore, the inherent wisdom of what is considered to be the world's oldest constitution was that it was ingeniously built to travel well throughout all regions of the kingdom.

Initially, the Kouroukan Fouga moved across the territories that constituted ancient Mali, which grew in size, wealth, and influence over four centuries as the result of further conquests. In less than two decades after the Gbara at Ka-ba, in about 1250 CE, this Manden Charter was law over a geographical area of 100,000 km^2.

A century later, the Mali Empire had grown to declare dominion over 1,240,140 km^2 with over 400 cities, stretching from the hinterlands of the Saharan Desert to the coastal forests of Gambia, under its control. Interestingly, its pattern followed that set by its predecessor, the Ghana Empire, which recognized the unique cultural identities of its vassal states.[31]

Another crucial innovation was the introduction of hereditary professions via Sundiata's clan-and-caste system, which enabled the Griot network to thrive across many generations. Henceforth, sons had to learn and practice the same trade as their fathers. Beyond this, individual kingdoms retained a large degree of autonomy, all the while underneath the invisible umbrella of the Kouroukan Fouga.

As a result, the Griot culture endured, flourished, and eventually survived the empire that had bred and qualified its prominence. In fact, it reached other corners of the known world first by conquests that followed the beginning of the decline of the Mali Empire in the late fourteenth century (although it would survive until ultimately replaced by the Morrocan Empire, c.1670), then by the trans-Atlantic slave trade which began in the mid-sixteenth century, ultimately to decimate much of the population of West Africa, mostly at the hands of British, Spanish, French and Portuguese slave traders.

This hereditary Griot network of learned men who were cultural purveyors of story, song, emissarial mediation, and ancestral wisdom took their craft with them wherever they went. Today, their legacy lingers across many of these territories, and, much like the legacy of the Kouroukan Fouga, they have not only found their place within myriad new cultural contexts but also inevitably and invariably influenced them.

3.2 A Dark Chapter and a New Life in the New World

Beginning in 1526, the grim, cruel business of forced transport and trade of men, women, and children from the western coast of Africa to what was then known as the New World began.[32]

[31] Sundiata and Mansa Musa: Architects of Mali's golden empire (Niane, 1979). Access:https://unesdoc.unesco.org/ark:/48223/pf0000044668

[32] https://www.gilderlehrman.org/history-resources/teacher-resources/historical-context-facts-about-slave-tradeandslavery.

This caused major cultural disruption in every single community that the triangular—West Africa, the Americas, Britain/Europe—trans-Atlantic slave trade touched.

While the Kouroukan Fouga points to the existence and regulation of slavery within its territories, its charter was clear on the rights and treatment afforded this segment of society and the prevailing cultural attitudes towards this practice.[33] Indeed, long before the Kouroukan Fouga, slavery was an established institution throughout West Africa of the period,[34] and many of its empires flourished with a recognized *slave society* as part of their social strata.

However, beginning in the sixteenth century, the triangular trade of people across the Atlantic set a new precedent, eroding the humanity of those enslaved and legitimizing them as trade commodities for barter and sale in foreign territories and colonies. This new chapter in the institution of slavery founded a brutal and inhumane global economy.

Africans were captured by a network of indigenous slavers working for profit, who then sold them on to Spanish, Portuguese, British, or French traders who treated them as chattel to be transported across the Atlantic as quickly and cheaply as possible. Men, women, and children were separated by sex and inhumanely chained within cramped, dark holds of merchant ships. During its course, an estimated 12.5 million people were captured and transported on the high seas, but only 11 million survived the journey to the New World.

3.3 The Griot Tradition Continues in the Americas

Among the transported enslaved people were descendants of the Mali Mandé people, including members of the hereditary Griot sect, direct ancestors of the historic *Djeli* who were tasked with carrying the mandates and tenets of the Kouroukan Fouga across the empire. These enslaved descendants took with them echoes of their forebears' expressive cultural legacies, mainly through song and storytelling, which survive in the Americas and Caribbean region to this day.

These *Djeli/Griot* heirs carried their oral histories of important lineages, events, cultural touchstones, and the common wisdom of a people, thus forming an important subculture among populations living in the plantation slave "communities" of the New World. For example, enslaved Africans in the British colonies of the North American East Coast created new narratives that helped them endure their hardships with a tenacity that only a deeply rooted sense of cultural identity and belonging could provide.

This included personal histories, known as slave narratives, followed the design of the oral histories, which gives modern observers a glimpse into the characters of historical figures such as the Epic of Sundiata Kieta.[35] Very few records survive to the present day. However, a popular illustration of this can be found in The Interesting Narrative of the Life of Olaudah Equiano, the autobiography of a prominent freed slave and abolitionist who traced his roots to the village of Essaka in what is now Nigeria.

For many who have suffered the forced inhumanity of enslavement, the Griot tradition furnished an internal world of its own evolution into which they could escape and truly see themselves as their ancestors saw themselves, as members of a thriving empire in which they were free men in a cohesive society, living lives of dignity[36] and purpose.

[33] **Article 20:** Do not ill treat the slaves. We are the master of the slave but not the bag he carries [Kouroukan Fouga].
[34] https://atlasofenslavement.rosalux-geneva.org/mali/
[35] https://www.britannica.com/topic/Sundiata-An-Epic-of-Old-Mali
[36] Exploring the African American Oral Tradition: Instructional Implications for Literacy Learning (Grace et al, 2004). Access: https://www.proquest.com/docview/196867020?pq-origsite=gscholar from openview=true

3.4 Calypso

Calypso is evidence that this cultural monument traveled through song, giving birth to modern creative expressions. In Brazil, echoes of the Griot tradition can be heard in the music of Bahia, where most of the population trace their ancestry to slavery.[37] The region also innovated popular musical styles such as the Tropicália movement of the 1960s, led by cultural icons Gilberto Gil, Caetano Veloso, and Gal Costa, among others. This genre was a fusion of modern Brazilian music with traditional African traditions, infusing rhythmic drums and lyrical storytelling.

In the Caribbean, the Griot transformed into the 'Chantwell' Calypso vocalists singing the work songs rooted in the work songs of enslaved people on sugar plantations, a prevailing musical style that is popular in the islands of Grenada, Dominica, St. Lucia, Trinidad and Tobago among others.

The Wikipedia entry for Calypso says this: *"(It's) a style of Caribbean music that originated in Trinidad and Tobago during the early to mid-nineteenth century and spread to the rest of the Caribbean Antilles by the mid-twentieth century. Its rhythms can be traced back to West African Kaiso and the arrival of French planters and their slaves from the French Antilles in the eighteenth century.*

"It is characterized by highly rhythmic and harmonic vocals and was historically most often sung in a French creole and led by a Griot. As calypso developed, the role of the griot became known as a chantuelle and eventually, calypsonian. As English replaced "patois" (Antillean) as the dominant language, calypso migrated into English, and in so doing it attracted more attention from the government. It allowed the masses to challenge the doings of the unelected Governor and Legislative Council, and the elected town councils of Port of Spain and San Fernando. Calypso continued to play an important role in political expression."

People in the United States would best know this genre in popular music in the Calypso stylings of the late Harry Belafonte, whose, perhaps, most famous song was "Day 0," known as the "banana boat song."

The Griot tradition influence is also evident in 'Toasting,' a musical genre similar to modern hip-hop music involving chanting over instrumental segments called riddims (rhythms?) with a strong DJ or MC *(a modern day Griot Master of Ceremonies?)* leading the chorus. Similarly, Samba (and, likely, Tango) and Reggae can also trace their origins to the Griot pattern, with idiosyncratic cultural innovations in their modern delivery.

Finally, in the American South, which had a pervasive legacy of slavery, the blues and its close relative, *jazz*, were the gifts from the *Griots*. The shimmering vibrato of the late blues singer, B.B. King, over the hypnotizing bass guitar harks back to the artistry in its most authentic form, voice over the 24-string Kora, a lute-like instrument innovated by the Mandé civilization. These genres formed the bedrock of Hip Hop, a socio-cultural movement that began in earnest in the 1970s, on the back of the "Black Power" revolution of the 1960s and '70s[38] in the US.

3.5 An African Evolution

For those who remained in Africa, the Kouroukan Fouga and its cultural vestiges endured similar pressures for survival. Beginning in 1460 CE, attributable to a crisis in leadership and internal chaos, the Songhai Empire began overtaking the Mali Empire's prominence in the region.

During the reign of its founder, Sunni Ali Ber, from AD 1464 to 1492, much of the Mali Empire was absorbed under his rulership, including all prominent trade routes.

[37] https://read.dukeupress.edu/hahr/article/73/3/361/146025/Manumission-and-Ethnicity-in-Urban-Slavery

[38] Black Power: National Archives. Access: https://www.archives.gov/research/african-americans/black-power#:~:text=Black%20Power%20began%20as%20revolutionary,of%20political%20and%20cultural%20institutions.

The new emperor, a military and political science student, reformed much of the social organization that the Kouroukan Fouga had established. The autonomy of individual kingdoms within the Mali Empire was upended and restructured under a centralized government headquartered in Gao (now in modern-day Mali, on the banks of the River Niger), which would later become the seat of the Askia dynasty, which claimed supreme headship over Songhai at the height of its power.

Where the Kouroukan Fouga was governed by a secular philosophy, the Askia established Islamic law (known as Sharia) across all the former territories of ancient Mali, with Gao leading as a major center of Islamic scholarship. However, echoes of the former governance system lingered on. Songhai, too, had a complex social hierarchy, similar to Sundiata's clan-and-caste system, which dictated professions in agriculture and trade.

An agricultural class formed with farmers tasked solely with food production. At major commercial centers, traders were commissioned to facilitate the exchange of goods, mainly salt and gold, across the empire's major trade routes.[39] Slavery was also sustained as a cultural and economic practice, and perhaps due to the legacy of the Kouroukan Fouga, some enslaved people were permitted to rise to positions of power and influence within the new empire.

(Editor's note: While some of the dates of the three Empires of Ghana, Mali, and Songhai appear to overlap, the fact is that the three West African empires coexisted for centuries, with each rising to ascendancy in different periods of conquest.)

The Songhai Empire's demise came with the Moroccan Invasion of 1591 CE. This period ushered in two major disruptive forces that would come to shape the history of the region: the trans-Atlantic slave trade and its traveling companion, European colonialism. While Moroccan hegemony was never fully recognized (just as previously experienced in the region by other empires in the vast region), it did establish full control over the trans-Saharan trade routes, which were crucial arteries in the movement of slaves and gold.

However, conflicts and resulting power vacuums gave way to increasing European influence. Merchants worked in West Africa at the behest of the commercial interests of European monarchs, having formed their own operations and historical networks in the region dating back to the fifteenth century. By 1895, all the former territories of ancient Mali had been consolidated into the Federation of States known as French West Africa.

However, the era of European colonialism did not completely erase the cultural and intellectual heritage of the Kouroukan Fouga. The Nyamakalas, the talented or occupational caste of which the Djali or Griots were, continued to exist as an occupational caste in pockets throughout the old empire.

However, the interference of military conquests, political restructuring, slavery, and finally, colonial rule reduced their status from caste noblemen to nomadic artisans living in penury. In some contexts, they were referred to as the refuse of society. Until a recent cultural resurgence, the Griot was reduced to turning his musical and poetic art into a desperate hand-to-mouth living or even to working with his hands to live, a steep decline in fortunes from the original order set by Kouroukan Fouga.[40]

However, the Griots of Africa did eventually reclaim a piece of their legacy, propelled by the international rise of Toumani Diabaté, the "undisputed world champion" as a musician playing the traditional Kora. He is from the Mali Republic and a member of one of the five principal musical Griot families in West Africa; his father, Sidiki Diabaté, known as the King of Kora, was a popular musician who led his own Mandé ensemble,

[39] African Civilization: From Ancient Kingdoms to Modern Societies (Mohamed, 2023).
[40] Sundiata: An Epic of Old Mali (Niane, 1960). Worldcat Access: https://www.worldcat.org/title/sundiata-an-epic-of-old-mali/oclc/5393002

eleasing records locally throughout the 1970s and '80s. After being featured on his father's record, *Ba Tagoma*, in 1987, Toumani began making music under his own banner, establishing the seventy-first generation of his family in the craft.

His first solo album, *Kaira*, was recorded in London over the course of an afternoon in 1988. It was an early success and introduced contemporary Western audiences to this ancient African art form. Today, Toumani is considered a legendary virtuoso within the Griot tradition. However, his legacy extends far beyond that. His success inspired the career of his cousin, the Gambian Sona Jobarteh, who is celebrated as Africa's first female Kora-playing Griot. The daughter of prominent Gambian Griot Sanjally Jobarteh and an English mother, she received her formal musical training in the Western tradition, studying cello, harpsichord, and piano at the Royal College of Music in London. However, in the tradition of her ancestors, Sona was trained to play the Kora by her brother and father.

Her entry into the formal profession as a woman was both a major departure from and an update on her qualifications in the ordinances of the Kouroukan Fouga. While the laws of primogeniture, property, and profession passed inheritance on to sons *(Article 18),*[41] women had representation rights in all sectors of society *(Article 16),*[42] While women from prominent Griot families were allowed to sing, they were forbidden from playing sacred instruments such as the Kora. In Jobarteh's case, she had to break the tradition to preserve it.[43]

obarteh's progressiveness and iron will propel her to international acclaim and allow her to establish new traditions that continue to honor the Kouroukan Fouga. In a 2022 interview, she cites her music as a celebration of ancient Mali, noting that "This is music that carries the (Mali) Empire at its greatest… Traditions have to evolve; they are not stagnant!"[44]

Giving back to the community, also a mandate of the Kouroukan Fouga, now features prominently in her legacy.[45] Jobarteh has since started an academy of music in her native Gambia, training both boys and girls in the musical artistry of the Griots, regardless of their heritage or caste. Her celebrated hit, "Jarabi" (meaning Beloved), from her critically acclaimed 2011 album, *Fasiya*, is a lyrical rendition of her legendary cousin Toumani Diabaté's track of the same name from his ground-breaking debut, *Kaira.*

3.6 Survival, Evolution, Resurgence: Finding New Relevance

The Kouroukan Fouga's modern revival began in earnest in 1960 with the seminal work of Djibril Tamsir Niane, the Guinean historian and writer. His book, *Sundiata: An Epic of Old Mali*, first published in French, contains the first written reference to the ancient constitution nested within a rich narrative of the Maghan's life and conquests. This modern-day account relied mostly on the memory of the prominent Griot, Djeli Mamoudou Kouyaté, a direct descendant of Sundiata's personal griot, Balla Fassèkè Kouyaté.

It provided impetus for further research and academic work on the subject. Compilations and translations soon followed, first in the Mandinka language of the Mandé people of the Mali Empire, then in French, driven mostly by the work of celebrated Malian intellectuals Youssef Cissé and Wâ Kamissoko. Finally, in 1998, a conference held in Guinea brought together Griots, traditional historians, and modern scholars to produce the English-language version, which we reference in this chapter.
The memory work of this hereditary clan has always been and remains impressive. Not only were the contents of the original constitution meticulously preserved, but they were also

[41] **Article 18:** We should respect the law of primogeniture [Kouroukan Fouga].
[42] **Article 16:** Women, apart from their everyday occupations, should be associated with all our management [Kouroukan Fouga].
[43&44] Sona Jobarteh: The 60 Minutes Interview. Access: https://www.youtube.com/watch?v=msRZsecUp-I&ab_channel=60Minutes
[45] **Article 31:** We should help those who are in need [Kouroukan Fouga].



supported by written records left behind by various observers and historians of the Mali Empire, such as the Islamic explorer Ibn Battuta and the ancient Tunisian philosopher Ibn Khaldun.[46]

The Griots are perhaps the unsung heroes of the Kouroukan Fouga. At their peak, they were considered the most important members of this West African society—even though traditionally from a lower caste, the Kouroukan Fouga elevated them to culturally significant prominence.

Rather than document archives or libraries, they held the oral annals of the peoples' events, customs, traditions, and governance principles of kings. Despite the profound disruptions of political conquest, colonialism, and slavery, these Griot families still exist, carrying within them the entire cultural legacies of their communities tracing back to their medieval empire roots.

Today, they can be found in Guinea, the Republic of Mali, and Gambia, among others, thanks in part to the organizing principles of the Kouroukan Fouga. As a caste, Griots are not only living spoken documents of history; they embody that history itself! In this way, they are part and parcel of the cultural asset's enduring mystery and magnificence.

[46] An Ear for the Past: An Interview with Djibril Tamsir Niane (UNESCO, 2009). Access:https://unesdoc.unesco.org/ark:/48223/pf0000185996



4. The Wisdom Way Forward

4.1 Calling on Ancient Wisdom

After a critical analysis, one would find that the Kouroukan Fouga is far more than a charter. An old adage claims an arrow can only be shot ahead by pulling backward. Thus, to move ahead, it is imperative to fully explore the past and its wisdom, such as those offered by the Kouroukan Fouga, to directly address the challenges we face today with keen insight and precision.

The oldest constitutional charter in the world established social cohesion, promoted peace, and assigned rights and dignity to every human life whilst ensuring the continuity of society through education, gender equity, inclusion, personal responsibility, environment stewardship, and preservation. The resultant prosperity, growth, and longevity of the Mali Empire are evidence of its successes.

Over the last two centuries, communal paradigms have shifted with the advent of the Industrial Revolution. In our time, the collapse of traditional social structures has given way to individualism and consumerism, both offshoots of industrialization. This has led to the individual's disconnect from self, community, and the natural world.

4.2 Hope for a Period of Inherent Divisiveness and Brokenness?

The world is currently experiencing and subject to many crises across the ecological, psychological, financial, social, and political domains. Particularly in the digital age, we find ourselves adrift within a paradox—living in a divided world where humanity is more technologically connected than ever before and where every individual has become a global commercial entity in and of herself or himself. But alone.

Seeking a solution to the reunification of individuals to communities while espousing the need for both personal accountability and social and civic duty urges us to return to well-worn wisdom paths.

A narrative from Chinese mythology magnifies the state of crisis that we have invited. It goes:

There was a monster, it is said, called Tao Tie, which was possessed by an insatiable appetite. It consumed every creature around it, even the Earth itself, yet it was hungry. Finally, it turned to its own body, thus eating arms, legs, and torso, leaving nothing but the head.[47]

Could it be that we are that monster? Far beyond consuming all that we have inherited from the labor of civilizations passed and from the natural world, we now may be in danger of destroying ourselves through unfettered avarice, selfishness, and ignorance.

It's time we transform humanity by relearning to be human once again. If we wish to outlast the multiple crises enveloping the world today, our only hope lies in our history as a shared humanity. Its ample lessons caution us that the past is, indeed, prologue, that, while the repetition of errors that have left scars on the body of the human experience, we are invited (by Griot mandate) to learn from all of it.

Thus, a history like the Kouroukan Fouga locates us in a community, adapting social cohesion as a way of life and equity as a crucial part of our being. It reminds us that to be human is to be diverse, inclusive, and equitable in our sense of personal responsibility in the community.

[47] https://taotie.readthedocs.io/en/latest/

4.3 A Wisdom Is Not a System

Much of the ingenuity and success of the Kouroukan Fouga lies in the fact that its edicts institutionalized wisdom, already been proven across the centuries as law. That is, it established the Mali empire under a *wisdom*, not a *system*, and therein lies a crucial, if nuanced, distinction. In this contrast lies the triumph and importance of the world's oldest constitution.

A system is a set of interwoven principles and procedures that form the mechanisms within which things are done.[48] These are often disparate but related elements, manipulated to work in unison, that configure a whole and produce a set of didactic outcomes. Our world is full of them—public school systems, thermodynamic systems, judicial systems, even digital systems.

While instructive, systems are inherently imperfect because they rely on static knowledge. Consequently, systems require consistent revision to develop and represent some version of "current." That is, they need to be updated constantly, and where they are not actively improved upon, the results can be devastating.

Editor's Note: As an illustration of this point, the current updated version of the operating system for the Apple iPhone (iOS) is 17.6, and it is entirely incompatible with iOS v1.0. Now, ask what Steve Jobs's foundational wisdom was that led to Apple, because of the iPhone, becoming the first trillion-dollar valued company in the world. The fact that there was such wisdom, which few can simply state, is representative of how far we have slid backward from the time of the Kouroukan Fouga – a time when its wisdom would last centuries in the Middle Ages. Now it's decades and becoming ever-shorter.

Wisdom is intangible but living. Often seen as an ethereal product of the human condition, it simultaneously relies on knowledge, experience, understanding, sensibility, and insight to produce sound judgment.[49] It is, in fact, the successful application of a body of accumulated knowledge, making its outcomes, by their nature, far superior to those of a system.

What has made systems proliferation prominent in our current age is that wisdom is not easily accessible—it has to be sought—a process that may take years or even a lifetime. In the ancient world, for example, wisdom was the province of kings, and, in most cases, just a small minority of the population operated within this domain.

Wise men dedicated their lives to the pursuit of wisdom and applied their specializations in direct service to the Crown. In the case of the Mali Empire of the twelfth and thirteenth centuries, only those of the hereditary Griot caste were tasked with this function. However, over the centuries, with the democratization of knowledge, the ideals of wisdom have fallen away, paving the way for systematic, algorithmic functions that govern the digital world in which we now live. To put it plainly, while systems are manufactured, they're mechanisms are often bereft of the humanity they are built to serve. On the other hand, wisdom is a direct product of humankind—the embodiment of the learnings of human experience—and thus is uniquely placed to address the challenges of society.

In our contributory chapter to *Healing a Broken World*, we posit that to address our current predicament as humanity; we must return to this subtle, nuanced difference of *systems versus wisdom* to seek solutions that can both stand the test of time and yet evolve in the new conditions of the time.

[48] https://www.merriam-webster.com/dictionary/system

[49] https://www.merriam-webster.com/dictionary/wisdom

Because of this truth, the Kouroukan Fouga well-served its populations over centuries of change and evolution. Its survival, evolution, resurgence, and recent popularity indicate this fact. Drawing from its wisdom, which was earned from the experience over the lifetimes of generations of its proponents, offers a way forward for modern leaders and those who advise them.

The reason for this is aptly summarized by a statement by Djeli Mamoudou Kouyaté, a descendant of an architect of the Kouroukan Fouga, the first of the Mali line of Griots, Balla Fassèkè Kouyaté. In his contribution to the Epic of Sundiata and the First Kings of Mali,[50] he declared *that the world is old, but the future springs from the past.* This points to the transcendence of *human wisdom over engineered systems*. The former is alive and dynamic, while the latter is inanimate and static.

4.4 A Way of Thinking

Wisdom not only reproduces positive outcomes (often within systems) but also creates conditions for adapting to new ideas, adding to its efficacy when correctly applied. It inculcates willing minds to operate in the critical environment needed for personal growth, thus encouraging societal progress. Calling from the annals of history, it forms new pathways for the present and future.

As some ancient texts would frame these principles, *wisdom is fool-proof*. However, those who seek wisdom must be committed to its demands. Wisdom challenges mindsets; it demands a dedication to depth and an investigation of overlooked intricacies. As the Kouroukan Fouga teaches us, wisdom must be labored for, which requires an investment of time—a non-renewable resource. However, as its legacy also emphasizes—it can be inherited and build upon—repeatedly and continuously—for prosperity.

This is in direct contravention to the requirements of our present age, where the speed of technological progress disagrees with the conditions required for wisdom. Indeed, we live in an age of increasingly complex systems. Tasks considered straightforward or repetitive for humans are quickly being replaced by automation technology such as AI and machine learning.

At this juncture in human history, monotony has been outsourced to machines. This offers a unique opportunity, particularly for the leaders of our time. Where automated technology has already freed or promises to soon free vast swathes of the productive population to focus on more meaningful human endeavors, there is a window to allocate this time with greater wisdom.

With the advent of the digital age, there is the temptation to believe that human productivity no longer requires a depth of thought or study. However, we argue that the opportunity posed by the current age and its innovations is the converse.

More than ever, we are empowered to investigate and pursue the wisdom of older societies and cultures, such as the Mali Empire's Kouroukan Fouga, with tenacious pursuit. The world is more educated and literate than ever before,[51] a gift of the era of industrialization. With the advent of new technologies, we also have more time to dedicate to seeking wisdom.

More importantly, it is more accessible than at any other point in human history. Contrary to the dictates of modern culture, it would behoove us to return to first principles and build with the building blocks that ancients relied upon. As the example of the Kouroukan Fouga reminds us, complex, enduring structures, institutions, and even kingdoms are products of slow-cooked intent. They are not instant!

[50] Sundiata: An Epic of Old Mali (Niane, 1960). Access: https://www.worldcat.org/title/sundiata-an-epic-of-old-mali/oclc/5393002

[51] https://www.weforum.org/agenda/2022/09/reading-writing-global-literacy-rate-changed/

So is the wisdom required for their construction. Hence, we invite global leaders, entrepreneurs, and policymakers to return to these simple but impactful truths.

Now, please ask yourself, what did YOU see, perhaps for the first time, that was the primally essential wisdom of Kouroukan Fouga to the culture of the Mali Empire that it has survived to the present moment?



[50] Sundiata: An Epic of Old Mali (Niane, 1960). Access: https://www.worldcat.org/title/sundiata-an-epic-of-old-mali/oclc/5393002



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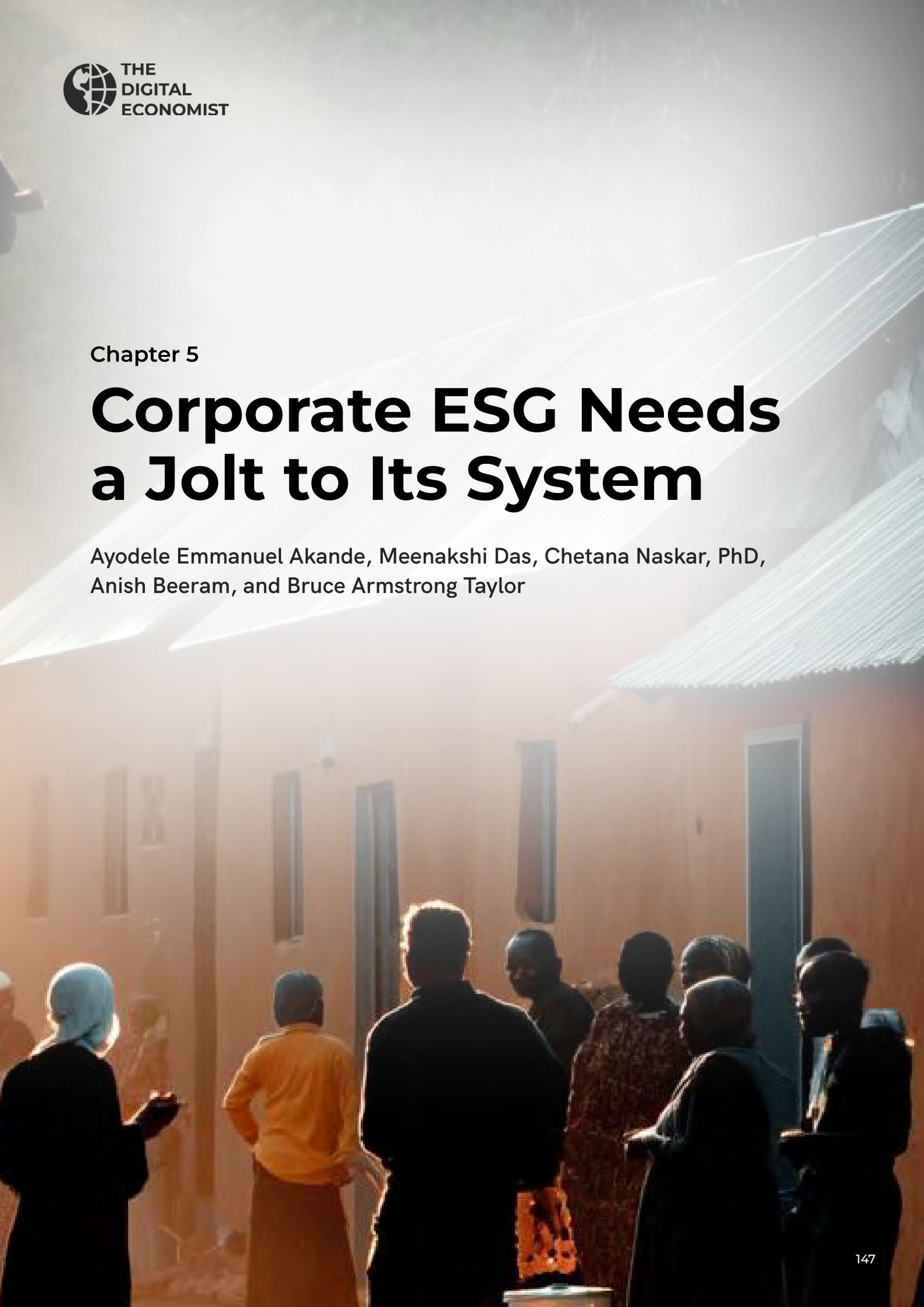
Chapter 5

Corporate ESG Needs a Jolt to Its System

Ayodele Emmanuel Akande, Meenakshi Das, Chetana Naskar, PhD, Anish Beeram, and Bruce Armstrong Taylor





What began as a way to meet new corporate policies, provide investor guidance, and report regulatory compliance now requires CPR.

1. Introduction[1]

1.1 A Brief Informal Backgrounder

One of the profound benefits of the accelerating transformation to a true global Industry 5.0 digital economy is that initiatives that, in the past, would have been understood to be too costly to meet corporate financial performance requirements or too management- and workforce-intensive, may now not be so. One such area is within the realm of *Environmental, Social, and Governance (ESG)*, which itself has its roots in earlier concepts, such as Corporate Social Responsibility (CSR) and Socially Responsible Investing (SRI), which emphasized ethical investment and corporate accountability.

These frameworks laid the foundation for modern ESG principles by promoting sustainability and socially responsible business practices. ESG gained mainstream recognition in 2004 when the United Nations Global Compact (UNGC) published the report "Who Cares Wins," which formalized ESG as a key consideration for investors and businesses.

Despite its progress, many mainstream ESG frameworks—such as Bloomberg, Refinitiv, MSCI, GRI, and SASB—often overlook critical aspects of human-centric development. These models tend to focus on financial and environmental metrics while neglecting broader issues of social equity, inclusion, and energy justice.

To address these gaps, the Sustainable Human Empowerment (SHE) framework integrates human empowerment, inclusion, and social equity into the ESG paradigm. By prioritizing these elements, SHE ensures a more holistic approach to sustainable development, aligning financial success with ethical responsibility.

In the two decades since its introduction, ESG has seen widespread adoption, with more than 88 percent of all publicly traded corporations implementing formal ESG policies and programs, according to Key ESG's 2024 "50 Key Statistics You Need to Know"[2] report. Among major companies, 90 percent of the Fortune Global 500 use the Global Reporting Initiative (GRI),[3] an Amsterdam-based NGO, as a primary international framework for reporting ESG.

However, more recently, regulatory frameworks, particularly in the European Union,[4] have implemented more stringent ESG compliance measures than in the United States. For instance, the European Corporate Sustainability Reporting Directive (CSRD) requires both broader and more verifiable disclosures while US regulations reporting requirements are more fragmented and voluntary, thus less regulatory in nature and more investor- and board of directors-oriented governance guidance in nature.

In its original conception, ESG was principally intended, in the US, to provide a level of advisory understanding to investors, stockholders, the public—through the annual report—as well as oversight by government regulators. Within its

[1] United Nations Environment Programme Finance Initiative, "Who Cares Wins," retrieved September 18, 2024, https://www.unepfi.org/fileadmin/events/2004/stocks/who_cares_wins_global_compact_2004.pdf.

[2] Hopkinson, I, "2024 ESG Statistics: Insights for Business Leaders," KEY ESG, retrieved September 17, 2024, https://www.keyesg.com/article/50-esg-statistics-you-need-to-know-in-2024.

[3] Global Reporting Initiative, "The Global Leader for Impact Reporting," retrieved September 17, 2024, https://www.globalreporting.org/.

[4] OneTrust, "Ultimate Guide to the EU CSRD ESG Regulation for Businesses," retrieved September 17, 2024, https://www.onetrust.com/blog/ultimate-guide-to-eu-csrd-esg-regulation-for-businesses/.

three principal domains (and many sub-domains). The purpose was both requirement and encouragement, bringing some measure of accountability and transparency to the relative effort or effectiveness of policies, programs, and regulation adherence.

ESG regulatory compliance means adhering to globally accepted and standardized regulatory frameworks or national and international regulations applicable to a company's structure, industry, and country of operations. However, at least in the US, ESG is generally immune from audit requirements for corporate performance. Such regulations being principally focused on matters of financial performance accountability for publicly-traded, investor-owned companies.
Globally (and increasingly so in the US, as well, ESG has become a crucial factor in investment guidance and corporate governance policy.
It increasingly influences risk assessment, stakeholder engagement, and long-term performance. The US, as in many other economic markets, is increasingly incorporating ESG metrics into financial analysis. Regulatory approaches, however, vary widely across regions and national economy markets.

1.2 So, What's Wrong?

While some argue the ESG remains an effective corporate governance tool, this chapter examines critical shortcomings that may hinder its impact and implementation. Despite its intended role in driving accountability, some critics argue that ESG has increasingly become a bureaucratic exercise focused on compliance and "looking good" rather than meaningful impact.

Research suggests that without measurable, verifiable enforcement mechanisms, ESG may fail to translate corporate policy and governance commitments into tangible environmental and social progress. ESG initiatives are often disconnected from the on-the-ground realities of the people, communities, countries, and regions where they are implemented, particularly so by large, publicly traded multinational corporations (MNCs).

This misalignment results in gaps between corporate ESG commitments and their actual social and environmental impact.

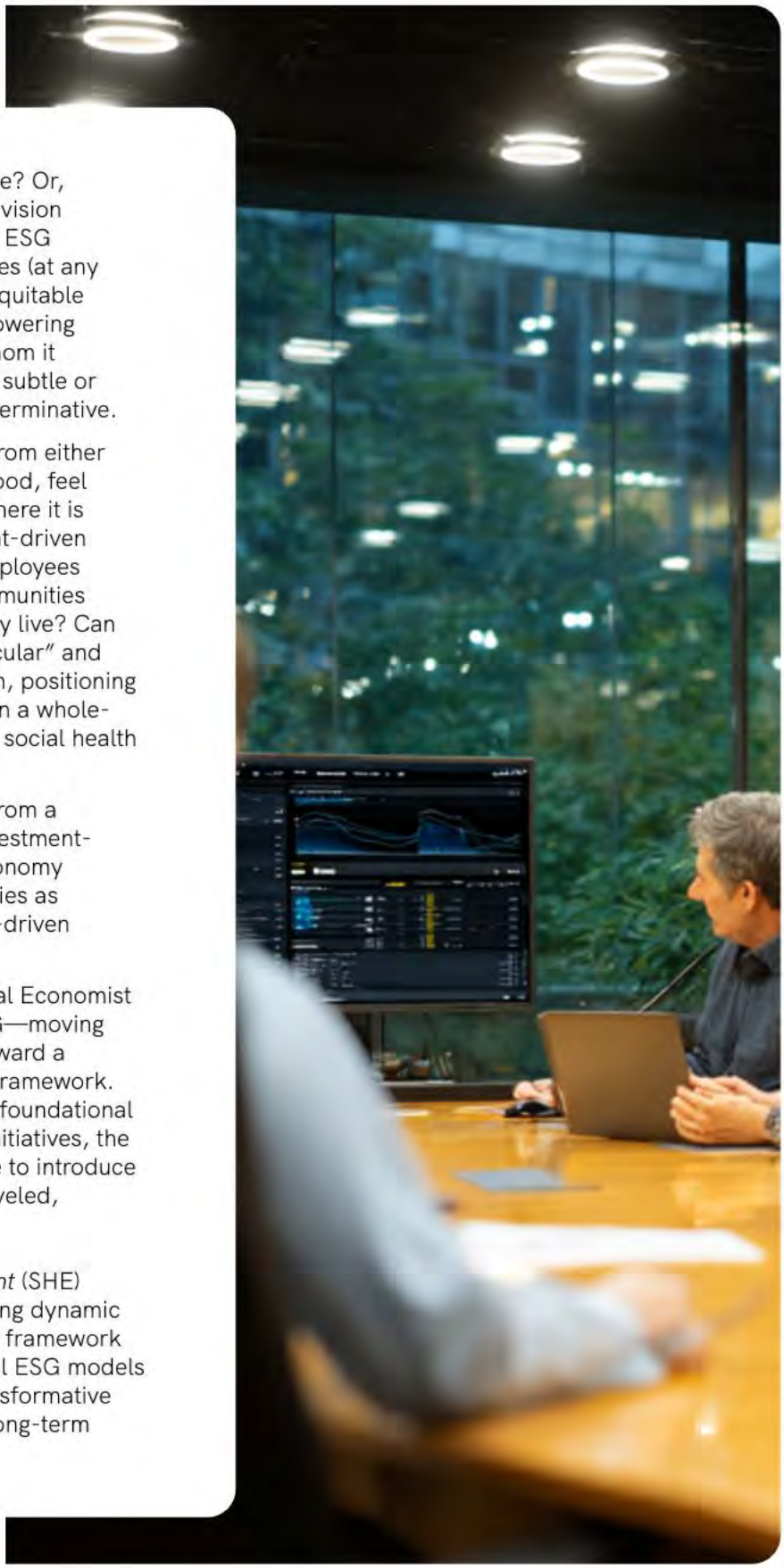
One key issue lies in both employee engagement within the corporate organization, as well as externally within the communities in which the companies operate.

- How actively do employees at all levels participate in ESG initiatives, and to what extent do organizations integrate ESG into their operational culture?
- How personally and professionally engaged and involved is a company's workforce with the programs intended to address pressing ESG issues in the communities and countries where the company operates?
- Are employees at all levels actively engaged in the company's ESG initiatives? Do they feel included and empowered to contribute meaningfully to sustainability programs? Are employees welcome, encouraged, and supported to take active participation as a key part of their work charter and compensation?
- Do the corporate chairperson and/or CEO see this as a foundational expression of corporate values to be communicated to all stakeholders in the corporate annual report?
- Further, do corporate ESG policies reflect a shared commitment to diversity, equity, and inclusion (DEI) (now deeply out of favor in the US' current political atmosphere and the current publicly elected presidential administration) in its global ESG-facing programs? Is it truly engaged in its projects and activates critical environmental issues in communities at any scale in which it has a finance and operations stake?
- Philosophically, which is it? Do large multinational corporations (MNCs) see themselves as "donating" a tiny sliver of their financial largesse to the subject social

communities in which they operate? Or, conversely, do they have a larger vision of being in a long-term sustaining ESG partnership with these communities (at any scale), or does it see itself in an equitable wealth-sharing partnership, empowering people and communities upon whom it depends? The distinction may be subtle or nuanced, but also pivotal and determinative.

- Finally, can ESG funding evolve from either regulatory compliance or "look good, feel good" annual reporting, to one where it is understood that it is an investment-driven partnership—first, in and with employees and, second, in and with the communities where they and their families likely live? Can they be seen in an expanded "circular" and "regenerative" economy approach, positioning the MNC as a long-term partner in a whole-community-driven ecological and social health and well-being initiatives?
- Finally, can ESG funding evolve from a compliance requirement to an investment-driven partnership? A circular economy approach would position companies as long-term partners in community-driven sustainability initiatives.
- In this broader context, The Digital Economist presents a paradigm shift for ESG—moving beyond regulatory compliance toward a people-centered, impact-driven framework. While ESG may have served as a foundational model for various sustainability initiatives, the authors argue that now is the time to introduce a renewed and significantly up-leveled, purpose-driven approach.

The *Sustainable Human Empowerment* (SHE) framework redefines ESG by integrating dynamic social and environmental values. This framework addresses the limitations of traditional ESG models by fostering a more adaptive and transformative approach to sustainability, ensuring long-term impact beyond compliance.





2. The SHE Framework: Designing Next-Gen ESG

The Digital Economist now introduces the Sustainable Human Empowerment (SHE) framework as this design up-leveling of ESG. Within it, its authors argue for integrating human empowerment, inclusion, and social equity into the ESG paradigm. By prioritizing these elements, SHE ESG ensures a more holistic approach to sustainable development, aligning financial success with ethical, environmental, and social well-being. And it will very likely be made far more possible with the introduction of advanced digital tools previously unavailable.

SHE signifies a fundamental transformation in ESG practices. Unlike traditional, top-down corporate policies, this framework prioritizes a people-centered approach, ensuring that ESG is not merely a compliance-driven policy function but an active mechanism for inclusivity and empowerment. This framework redefines ESG by integrating democratic participation, fostering a dynamic, human-focused approach to sustainability, and embedding social equity into corporate governance structures.

All this is made possible because of 5.0-level digitalization (e.g., AI–enabled sensing, monitoring, data analytics at the edge [closest to people and in communities], Web3 and blockchain distribution and decentralization, tokenization, 5G/6G mobile and wireless apps, modern digital and internet infrastructure, AR/VR, digital twinning, and XR meda—immersive, interactive, experiential).

Still, to properly begin this discussion, there's no stepping around or over the readily apparent *double entendre*. The SHE ESG Framework also focuses on gender equity. Despite its female connotation, it really is gender-equity-centric.

Human-centricity and empowerment appear to be a gaping hole in today's corporate ESG fabric. SHE has the authentic intention of transforming ESG by giving it a fresh refocus for the traditional three realms, as both a matter of clearly distinguished policy direction and the revitalization of an emergent practice of diverse, equitable, and inclusive (DEI) engagement (again, we hasten to remind the reader that in the US, DEI is forcefully being discouraged), resulting in the empowerment of the very people whose lives, communities, and environments are affected (or not!) by corporate ESG initiatives.

The digital 5.0 SHE ESG framework is designed to seek true social, environmental, and governance that integrates people with disabilities and/or other forms of disempowerment through a distinctly people-first approach. It serves as a flexible model, allowing organizations to develop sustainability and social-empowerment strategies using both robust design thinking and systems thinking approaches.

2.1 Existing ESG Frameworks Overview

Although existing ESG frameworks aim to enhance comparability and transparency by addressing governance, social, and environmental issues, they differ significantly in scope, materiality definition, and intended audience.

- **Global Reporting Initiative (GRI)** focuses on a broad range of stakeholders with an emphasis on impact materiality. It provides a comprehensive framework for sustainability reporting, which is widely accepted for its extensive coverage. However, implementation can be resource-intensive.

- **Sustainability Accounting Standards Board (SASB)** is primarily investor-focused, emphasizing financial materiality and includes industry-specific disclosures across seventy-seven sectors. While it enhances standardization and comparability, it may overlook broader sustainability concerns. Additionally, its reliance on company-reported data can introduce inconsistencies.

- **Morgan Stanley Capital International (MSCI)** uses an industry-specific methodology to evaluate ESG risk exposure and management. It's widely used by investors but criticized for its complex and opaque assessment process.
- **Sustainalytics** specializes in ESG risk assessment, providing forward-looking insights on trends in key ESG concerns. Its approach is particularly relevant for investors seeking to anticipate emerging risks in sustainability.

Key differences among the frameworks include their relative scope (comprehensive *vs.* focused, materiality definition (financial *vs.* impact), industry specificity, primary users (wide stakeholder base *vs.* tightly investor-guidance-focused), and data sourcing methodologies. GRI and SASB provide reporting frameworks while the others collect and analyze data to produce ratings or scores. These variations reflect the complexity of ESG assessment and the challenge of standardization and comparability in the field.

Organizations often use multiple frameworks to gain sharper insights into actual ESG performance and to more comprehensively meet diverse stakeholder needs. The choice of framework depends on an organization's specific requirements, target audience, and available resources, highlighting the need for careful consideration in selecting the most appropriate ESG reporting approach. As the field evolves, there is a growing need for harmonization among these frameworks to reduce reporting burden and improve comparability while still maintaining the unique strengths each framework brings to ESG assessment and reporting.

Structural analysis of ESG taxonomies indicates both similarities and differences in the way they categorize ESG components, especially in the social domain. All frameworks consistently address greenhouse gas emissions, resource use, and pollution in the environmental category. However, MSCI and GRI place a stronger emphasis on climate change as a standalone corporate risk

Framework	Environmental Focus	Social Focus	Governance Focus
MSCI	Strong focus on climate change	Incorporates "social opportunities" (e.g., access to finance, health care)	Covers corporate behavior
GRI	Addresses climate change and broad environmental issues	Human rights, local communities, and stakeholder engagement	Standard governance principles
SASB	Highlights air quality and ecological impacts	Industry-specific concerns (customer welfare, product labeling)	Systemic risk management, legal and regulatory focus
Bloomberg	General environmental categories	Supply chain considerations	Shareholder rights, takeover defense
Refinitiv	Standard environmental factors	Workforce and product responsibility	Traditional governance metrics

factor. SASB uniquely highlights air quality and ecological impacts, demonstrating its industry-specific focus.

The reporting burden only increases as these frameworks expand, making it difficult for companies to keep up with new policies. The growing strategies of ESG also tend to make comparability between companies and regions more difficult.

At the same time, the growing differences between frameworks reduce comparability across regions and industries. SHE will respond by creating a more unified and practical reporting structure. The structure will help organizations collect, track, and report ESG data more efficiently while adapting to changes in policy and market expectations. By blending human welfare and empowerment together with the strongest elements of each framework, it will support faster action and clearer progress on shared ESG goals.

2.2 Challanges in Implementing SHE ESG

Inconsistencies among ESG frameworks can deter stakeholders, erode trust, and damage cooperation among companies. Such dissonance often results in inefficiencies, as resources may be misallocated or efforts duplicated, leading to increased costs and missed opportunities for synergies.

Moreover, the lack of a unified approach can create internal conflicts, reduce employee morale, and hinder the collective ability to respond effectively to emerging ESG risks and opportunities. Ultimately, disjointed ESG strategies can impede progress toward long-term sustainability goals and diminish the potential benefits of a comprehensive and cohesive approach.

SHE introduces a more holistic and human-centered approach to ESG, emphasizing human empowerment, inclusion, energy justice, and social equity. While traditional frameworks like Bloomberg, Refinitiv, MSCI, GRI, and SASB cover broad environmental, social, and governance factors, SHE addresses critical aspects that are often underrepresented in existing taxonomies.

Bloomberg and Refinitiv, while being comprehensive, lack explicit focus on such values as energy equity and democracy or disability inclusion. MSCI touches on social opportunities but doesn't deeply address energy justice or poverty alleviation.

GRI, the most comprehensive of the traditional frameworks, covers some aspects of human rights and community relations but doesn't specifically emphasize energy democracy or disability inclusion.

SASB, with its industry-specific approach, touches on some aspects of social impact but lacks the broad emphasis on human empowerment central to SHE ESG.

Overall, SHE distinguishes itself by placing human welfare and empowerment at the core of sustainability analysis, assessment, and reporting. It uniquely incorporates concepts like energy democracy (Shayan et al. 2022) and explicitly addresses poverty and unemployment (Zhao et al. 2022), which are often only implicitly covered in other frameworks. As the SHE framework and models are designed, they will encompass new approaches to addressing GHG Protocol Scopes 1, 2, and 3, and the resulting GHG avoidance, reduction, capture, reuse, and permanent sequestration, and the corporate users' recommended best approaches. While existing taxonomies may provide valuable metrics for assessing corporate sustainability toward such targets as GHG neutrality through external offsetting credit exchanges, internal net-zero emissions, and circular-economy strategies and beyond. SHE, as built out, will offer a more nuanced, targeted approach to evaluating a company's contribution to human-centered and -empowered sustainable development and operations, filling critical gaps in current ESG assessments.

2.3 Addressing Diversity Through SHE

The SHE framework examines diversity on four levels. First, it measures diversity at a level of abilities. Historically, people with disabilities have been excluded from ESG policies and workspaces. SHE metrics aim to increase accessibility for people by assessing abilities, rather than disabilities, by ensuring accessibility technologies, such as requiring websites to meet Web Content Accessibility Guidelines[5] (WCAG) standards and providing workspaces for people with different abilities.

Second, SHE focuses on gender equity as a crucial dimension of diversity. The framework promotes balanced representation in leadership roles, setting specific metrics for ensuring gender diversity in management and board positions. Additionally, SHE emphasizes gender-inclusive policies throughout organizational structures, from hiring practices to ensuring women's full participation in decision-making processes, particularly in energy and community development projects.

Third, SHE studies diversity on the level of personal identity and the intersections between them. Intersectionality is crucial, as not only does workspace and ESG discrimination happen because of ability but also because of countless other determinants, whether that be gender identity, socio-economic status, or ethnicity. SHE Framework will provide clear, all-stakeholder-oriented metrics for examining the diversity of ESG strategies.

Fourth, SHE explores collective, community diversity. Low- or middle-income countries (LMICs) have been systematically excluded from ESG frameworks. The SHE Framework seeks to include these countries more fully in global sustainability and equity efforts. Initiatives for climate action also offer a chance to forward important social objectives such as gender equity, diversity, and inclusion for all people with differing abilities to add technical skills and business value.

SHE can help connect environmental initiatives with economic and social growth, offering transformative strategies addressing such pressing issues as poverty, inequality, and energy access equity, while fostering a more inclusive and diverse global economy.

Integrating "ability diversity (eschewing the term ability) with ESG frameworks, from the perspective of human empowerment, offers a transformative approach to sustainable business practices and processes that address environmental and climate-change necessities while tackling critical social issues such as poverty, inequality, and energy accessibility.

Diversity in ESG approaches guarantees fair(er) representation of gender, race, and class; fosters cultural sensitivity in sustainability initiatives; and improves problem-solving skills and accessibility equity for all. It encourages both deeper and more creative opportunities for understanding the complexity of interrelationships between global environmental challenges by bringing a greater range of perspectives to the table. ESG programs become more inclusive, both socially and culturally sensitive, and, ultimately, more successful in meeting the requirements of all stakeholders when different perspectives are formally included. Prioritizing diversity in ESG frameworks fosters greater stakeholder engagement, organizational creativity, resilience, and adaptability-simultaneously.

A diverse workforce is crucial for achieving inclusivity policies and social/cultural responsibility at the stakeholder level. Diversity has a significant economic impact: adding only 1 percent more of those who are differently abled workers to the American labor force, for instance, could enhance GDP by $25 billion.[6] Increasing the participation rate of women in the labor force over a ten-year period could increase global market capitalization by $5.87 trillion.[7] Such statistics as these underscore the next frontier of mission-driven ESG investing.

[5] W3C. "WCAG 2 Overview." https://www.w3.org/WAI/standards-guidelines/wcag/.

[6] Accenture et al. "Getting To Equal: The Disability Inclusion Advantage," Accenture, October 29, 2018, last retrieved September 16, 2024, chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.accenture.com/content/dam/accenture/final/a-com-migration/pdf/pdf-89/accenture-disability-inclusion-research-report.pdf.

[7] S&P, "How Gender Fits into ESG?" S&P, 2020, last retrieved September 16, 2024, spglobal.com.

In addition to bolstering individual diversity, collective and community diversity is essential to the "first principle of the SHE ESG Framework. Historical exclusion of LMICs from ESG initiatives emphasizes the need for a more equitable approach. Many developing countries struggle to transition to sustainable systems due to industrialization, resource dependency, and unsustainable agricultural practices. Rich countries are often at the forefront of sustainability technologies, while frontier, emerging and developing nation market economies lack both the infrastructure and capital needed for rapid adaptation. Bridging this disparity in a way that prevents neocolonial tendencies and strengthens national sovereignty is vital to increasing the effectiveness and fairness of ESG programs across the board.

The intersection of diversity in ESG produces a strong foundation for enhancing local and regional environments, biodiversity, and social justice and equity. When initiatives are designed with input from diverse communities, climate mitigation efforts can yield tangible social benefits such as improved clean energy access, job creation, equitable representation, and poverty reduction.

2.4 Integrating Gender and Diversity Equity Across the Sustainability Spectrum

The SHE ESG Framework significantly amplifies and accelerates gender and all other forms of diversity and inclusion by extending beyond the traditional ESG to focus on diverse representation in strategic decision-making, leadership, and tactical management roles. While existing ESG frameworks may address board-level diversity, the SHE Framework design approach is both real-time data-centered and action-oriented and inclusive of all levels. It weaves gender equity into the fabric of corporate ESG and climate sustainability efforts, addressing often-overlooked areas which have a profound impact on women's lives.

SHE also emphasizes social justice along every link of both supply and value chains—from suppliers through corporate institutions to end-use customers in both products and services—and promotes fair labor practices that benefit women and diverse workers, who are often the most vulnerable (or absent) in global value chains. Its innovative poverty-alleviation initiatives create targeted economic opportunities for women in underserved communities, recognizing their pivotal role in sustainable, circular development.

Notably, the SHE Framework's focus on clean energy access, equity, and democracy empowers women to have a greater voice in the primacy of clean energy-related development and distribution projects, addressing a critical gender disparity in a sector traditionally dominated by male decision-makers. SHE pioneers gender-responsive energy planning, ensuring women's needs have a central part in shaping equitable transmission and infrastructure development. This, again, from an advanced 5.0 digital economy perspective, is the province of AI-enabled Web3 distributed-ledger blockchain-based democratic distribution, inclusive of tokenization.

SHE's approach to energy democratization and equity also considers the unique challenges faced by women with special abilities and other diverse minority groups, highlighting the role that this form of intersectionality plays in inequality. By linking clean energy projects with women's health and wellness initiatives, particularly in reducing indoor air pollution, SHE creates a holistic approach that improves women's well-being, within the internal corporate community as well as within the external stakeholder community.

Gender inequity is exacerbated by energy insecurity, and the United Nations Development Programme offers[8] staggering evidence of this.

The SHE design approach not only tackles gender inequality at its roots but also harnesses women's perspectives to drive more inclusively effective eco- and social-sustainability solutions. By incorporating gender, disability, and diversity inclusion into consideration in every aspect of the SHE Framework, such human-empowerment transforms equitable, inclusive diversity (DEI) from an isolated metric into a fundamental driver of

[8] "Energy and Gender Equality," UNDP, accessed September 18, 2024, last retrieved September 16, 2024, https://www.undp.org/energy/our-work-areas/energy-and-gender-equality.

corporate sustainability and holistic circularity that will prove a remarkable social progress advance–one which will accrue considerable new "intangible asset and brand value to the investor-owned corporate institution.

In energy-scarce frontier and emerging economy regions, the burden of energy acquisition falls predominantly on women, as they can spend up to eighteen hours per week collecting fuel for cooking and heating. Despite bearing such a burden of responsibility for such energy impoverishment, women have been too often siloed away from deliberations on energy development policy—discussions for which their voices likely ought to be the most sought. The UNDP further reports[9] that "across 72 countries…women represent only six percent of ministerial-level [or agency-head] positions responsible for national energy policies and programs." US, EU, and ASEAN MNCs have a unique role within the scope of their ESG policies and practices to take an active change role in this, as will be described in the SHE Framework.

Put simply, women often bear significant personal burdens of climate-change-driven insecurity, yet have the least inclusion in policy considerations and decisions. The SHE Framework amplifies and accelerates gender and all forms of equitable inclusion, elevating it to the level of a mandate of the clean, sustainable energy transition.

The impetus for clean energy security extends to some, all, or more of the following, depending upon the scoping of the objectives of clean energy, climate change resilience and adaptation initiatives, projects, and long-range development programs, including (but not limited to):

- democratization of education and skills training for women;
- political enfranchisement in matters of clean energy, overall climate-change resilience and adaptation policy, and workforce inclusion to
    - strengthen and diversify household income streams;
    - equitably democratize climate-change governance inclusion for sustainable, the circular-economy "doughnut-economy" communities;
    - supplier diversification for clean energy and power generation and smart/micro-grid distribution to ensure maximal grid systems uptime availability, protecting against blackout and brownout disruption;
    - sustainable physical and digital infrastructure upgrading or new development.

By bridging clean energy with public health initiatives—reducing household resource use and toxic pollution, for instance—the SHE Framework places the well-being of women at the center of its mission. In doing so, it reinforces the view that equitable gender participation is not merely a social justice concern but a practical and necessary driver of sustainable development.



[9] "Energy and Gender Equality," UNDP, 2024.

2.5 Making the Case for All-Abilities Inclusion in SHE Framework

In May 2019, investors representing more than one trillion US dollars in combined assets, led by New York State Comptroller Thomas P. DiNapoli and Oregon State Treasurer Tobias Read, signed a statement[10] calling for companies to do more to include people with disabilities. The report said, "Accenture estimates that 10.7 million people with disabilities continue to be underrepresented in corporate America, representing a large underutilized talent pool." In SHE language, disability becomes "other abilities," and the equitable inclusion of these people presents a significant opportunity for companies to improve their performance, enhance workforce diversity, and distinguish themselves by developing an inclusive and sustainable corporate culture… "As investors," the Accenture report continues, "we seek to encourage our portfolio companies to capitalize on the opportunities of disability inclusion. Companies should analyze their disability inclusion policies through a third-party benchmarking tool such as the Disability Equality Index [DEI].[11] Tools like the DEI can provide companies with a comprehensive assessment of their disability inclusion practices and identify opportunities to gain a competitive advantage by improving those practices."

In the UA, the Americans with Disabilities Act (ADA) has made tremendous progress in making workplaces accessible for those with disabilities. However, there is a lot more to be done to make our society accessible to those with disabilities. According to the same report by Accenture cited above, "As of July 2018, only 29 percent of Americans of working age [between ages 16 and 64] with disabilities participated in the workforce, compared with 75 percent of Americans without a disability. In 2017, the unemployment rate for persons with disabilities was more than twice that for those without a disability—9.2 percent versus 4.2 percent." This highlights the need to include "other abilities" metrics in ESG so that companies can improve their disability inclusion strategies and hire more people with disabilities, improving the accessibility of their workplaces, and to cause greater sensitivity to such accessibility in products and services, when identified.

A report[12] by Disability:IN, a non-profit advocating for disability inclusion in the corporate sector, noted that investors are urging regulators to consider including disability status in future workforce reporting requirements for public companies' 10-K filings on financial performance to the US Securities and Exchange Commission.

Additionally, Disability:IN launched the Boards are IN[13] initiative to increase disability representation in corporate boardrooms and executive leadership. This initiative encourages companies, investors, and regulatory bodies to enhance board-level disability inclusion by implementing measures such as disclosing disability data, assessing inclusion efforts through the Disability Equality Index, and collaborating with organizations like Equilar[14] to identify board-ready executives with disabilities.

We present the following metrics that could add disability inclusion to our redefined SHE ESG Framework and make it readily available to shareholders and investors.

1. Digital Accessibility

a. **Web Accessibility:** Accessibility of both internal and external websites as per the WCAG 2.1, with regularly conducted audits and integrating this as part of the company's Corporate Digital Responsibility (CDR) policy.

b. **Events, Documents, and Social Media Accessibility:** Commitment to accessibility in all in-person and virtual events, such as captions, accessible meeting software, sign-language interpreters, physical ramps, etc., and marketing and content materials.

c. **Employee Training:** Internal training focused on digital technical aspects, such as developing products accessible to those with disabilities and educating employees on various disabilities, as well as biases and stigmas around them. This also includes

[10] DisabilityIN, "Joint Investor Statement on Corporate Disability Inclusion," DisabilityIN, December 3, 2020, last retrieved September 16, 2024, disabilityin-bulk.s3.amazonaws.com.

[11] "Disability Equality Index—Disability:In," Disability, August 13, 2024, https://disabilityin.org/what-we-do/disability-equality-index/.

[12] DisabilityIN, "The Case for Disability Inclusion in ESG Investing," DisabilityIN, May 12, 2022, last retrieved September 16, 2024, https://disabilityin.org/wp-content/uploads/2022/05/Disability-Inclusion-ESG-508.pdf.

[13] DisabilityIN, "Boards Are IN," DisabilityIN, last retrieved September 16, 2024, https://disabilityin.org/boards-are-in/.

[14] "The Trusted Source for Executive Intelligence," Equilar, April 2, 2024, https://www.equilar.com/.

ways to incorporate refresh and retention of accessibility principles rather than a one-time training.

2. "Other Abilities" Support

a. **Employment Resource Groups:** Implementation of other ability-specific ERGs with support from stakeholder(s) who identify as having such an other ability.

b. **Accessible Hiring:** Hiring should be equally accessible to people of all abilities, with such equitable accommodations offered throughout the interview and onboarding processes and with interviewers and onboarding staff trained in inclusive practices.

c. **Disability Accommodations:** Employees must be presented with accommodations for their abilities, and instructions to request them must be readily available.

d. **Built Environment Reviews and Audits:** Regular reviews and verifications must be conducted to make sure physical spaces, such as offices, kiosks, meeting and common areas, are accessible to all. In addition, sensory-friendly spaces for people who identify as neurodivergent should be established, and cafés should account for a variety of diets and allergies. As important as physical accessibility is, companies must offer flexible work policies, which include hybrid working or full-time and permanent work-from-home policies.

3. Inclusive Leadership

a. **Board of Directors–Level Positions:** Include people with different abilities in board and management-level positions who are willing to disclose and advocate for inclusion. This also encourages employees to self-identify, which, in turn, leads to an inclusive culture that fosters psychological safety.

b. **Corporate Social Responsibility (CSR):** Support community disability organizations when it comes to philanthropy program goals. Supporting disability-specific organizations that work with people with disabilities to have a direct positive impact.

The EU's Corporate Sustainability Reporting Directive (CSRD), which took effect in January 2023, mandates comprehensive disclosures across sustainability topics. These disclosure requirements are detailed in twelve new European Sustainability Reporting Standards (ESRS) put forward by the European Financial Reporting Advisory Group (EFRAG).

According to a Disability:IN report,[15] reporting on disability in business is moving toward greater transparency as standardized materiality assessments mandated by the Corporate Sustainability Reporting Directive (CSRD) begin to replace voluntary disclosures. As per another report[16] by Disability:IN, reporting on disability using ESRS requires companies to disclose various data such as the percentage of their own employees with disabilities, their processes for engaging with not only their own workforce but also their consumers with disabilities to get their perspectives about impacts affecting them, etc.

The same report states that starting in 2025, large companies based in an EU Member nation state must comply with the CSRD if they meet two of the following criteria: €50 million in net turnover, €25 million on the balance sheet, or 250 or more employees, with data collection beginning in 2024.

Non-EU companies with significant EU market activity (€150 million in annual turnover) will need to adhere to similar reporting requirements in 2026, based on data collected in 2025. These facts underscore the importance of companies taking disability inclusion seriously and not waiting until the last moment to comply, as well as for ESG frameworks and regulators to understand and put these into practice.

2.6 Enabling SHE Through the Power of the Advanced Digital Economy

The Sustainable Human Empowerment framework is more than a vision. It is a digital reality waiting

[15] DisabilityIN, "On the Verge: Disability and Sustainability Reporting in the Europe Fortune 500," DisabilityIN, last retrieved September16, 2024, https://disabilityin.org/resource/on-the-verge-disability-and-sustainability-reporting-europe/.

[16] DisabilityIN, "Corporate Sustainability Reporting Directive (CSRD) and Disability," last retrieved September 16, 2024, https://disabilityin-bulk.s3.amazonaws.com/2024/ESG/CSRD_Disability.docx.

to be activated. Advanced 5.0-level technologies form the backbone that makes SHE possible. They do not supplement the framework; they empower it. Through these technologies, the goals of equity, energy justice, and inclusion are not abstract ideals. They become systems that operate in real time, in real places, for real people.

The digital economy now provides the systems that allow human empowerment to be measured, shared, and scaled (Sun et al. 2023; Mignoni et al. 2024). Artificial intelligence allows for faster recognition of community needs and social gaps (Goralski et al. 2020). Real-time digital sensing can reveal invisible environmental risks and social vulnerabilities (Fan et al. 2020). These tools help companies and institutions act not after harm is done but in the moment harm begins to appear. This is one way digital systems bring ESG closer to the people it is meant to serve.

Edge computing moves intelligence closer to people. It decentralises decisions, allowing better local responses (Deng et al. 2020). This is essential to SHE. In remote or underserved regions, decisions made far away are often slow and out of touch. Advanced digital infrastructure places power in the hands of people who live closest to the problem and often have the clearest insight into the solution.

Blockchain offers transparency and integrity in how ESG data is captured, stored, and verified. It makes shared ownership possible (Almadadha 2024). Through secure digital ledgers, communities can participate in ESG value chains with trust. They can track contributions, confirm outcomes, and claim fair returns. This creates accountability. It also creates inclusion.

SHE depends on full participation. That means tools must be accessible. Digital platforms today allow for voice, image, and sensory input, removing traditional barriers for people with different abilities. Artificial intelligence can translate languages, adapt content, and personalise deliveries for those who were previously excluded from public or corporate systems. Digital technology does not only connect. It also levels the field.

Augmented reality and digital twinning allow policymakers, companies, and communities to simulate decisions before they are made. These models reveal future impact. They make complexity visible. They turn distant strategy into shared understanding. This builds trust—especially when change feels distant or uncertain (West et al. 2021).

Advanced wireless infrastructure, such as fifth and sixth generation mobile networks, enables real-time communication across vast and varied geographies. This is vital for frontier and emerging markets, where the ability to access climate data or join a distributed energy grid can mean the difference between resilience and risk.

Digital 5.0 technologies make SHE possible by placing people at the center of technological systems. These systems do not simply support human empowerment. They aim to enhance it. They offer the capacity to transform ESG from a report into a relationship. This is a relationship where the voices of women, the experiences of marginalised groups, and the innovations of communities are no longer absent, but rather central.

This is the promise of SHE. The digital economy has matured to the point where these ideas are no longer unattainable. They are now within our grasp. What remains is the will to design with people at the center, and the discipline to use this power for equity, inclusion, and lasting sustainability.





3. The SHE Framework Application Model#1: Clean Energy Equity Model

The first model under the SHE ESG Framework is a theoretical example of what we, the authors, propose here for an application of SHE. Clean, renewable energy generation, and its equitable transmission and distribution in the served communities, as well as the MNC development sponsor and partner. (One of SHE's defining first principles is that it calls for full MNC engagement with the communities where the corporate organizations operate, thus giving real collaborative meaning to the "S" in ESG acronym, for community collaboration.)

Model#1 takes advantage of the busy intersection of a growing demand for clean energy development and the need to diversify and democratize policy, planning, development, and ongoing operations as a matter of both sustainability and DEI in action.

Subsequent published editions will be based on case study experience when fully, and in collaborative community, developing and implementing this Framework, The Digital Economist's on-going SHE ESG Framework team will present separate sample models for each major domain and the myriad of subdomains of traditional corporate ESG periodic reporting. Each will reveal the decentralized, democratized, "open-source" intersectionality of private corporate management,the workforce, and the the public social and cultural communities within which they collectively live.

These will address each of the critical environmental, social, and governance issues. SHE Framework(s) and models will analyze and guide this by fully exploring the capacity to bridge the historic silos between sustaining corporate economic health and prosperity while simultaneously the planned sustaining of environmental and social health and stewardship as being first-principal responsibilities of corporations.

Robust, effective SHE ESG Frameworks and Models need to be seen not just as a matter of informing and advising executive management, boards of directors, investors, and governmental regulators on progress, but, rather, as a transformative model representing vast new opportunities for democratizing a corporation's ESG engagement in communities in which they operate.

3.1 The SHE Model#1: Reimagining ESG Through Inclusive Clean Energy and Human Empowerment

Sustainable Human Empowerment (SHE) reframes ESG by placing people at the core of environmental sustainability. It goes beyond compliance and moves into meaningful change that is diverse, equitable, and inclusive, and driven, in large measure, by community participation, wherein the MNC is seen as a key community player. SHE aims to align environmental goals with deep social and cultural values by democratising access to clean energy planning, policy, development, and operations. In this way, clean-energy sustainability is no longer the privilege of a few, but a shared responsibility across all the full community, likely also including in developing, buying and selling carbon and renewable energy credits.

SHE explores how funding and digital innovation can create measurable outcomes in frontline communities, especially in emerging and developing economies. These are regions often left behind in traditional ESG models. By using real-time data and digital tools, SHE provides a new way to track progress and share benefits more widely. It seeks to close the long-standing gaps between environmental stewardship, social resilience, and economic opportunity.

The SHE framework is designed to foster collaboration between corporate actors and local communities. It supports strategies that

reflect cultural sensitivity, collective problem-solving, and shared innovation. The model calls for the integration of local knowledge, digital transformation, and community-led methodologies in ESG implementation. SHE sees inclusion not as a goal but as a method where DEI and embracing underserved communities is a critical part of system design thinking, not just as an outcome.

In these frameworks and models (clean energy is just one such, remember) Digital 5.0 plays a vital role. Advanced digital tools, such as real-time sensing, monitoring, AI-enabled realtime analytics, satellite GIS mapping, and digital twin modelling, will support transparency, enable the ease of compelling communication, real-time immersive, experiential visualization of both the impacts of scalability and transparent accountability.

These tools help turn abstract plans and commitments into visualized progress on the ground. SHE recognises that technology availability and transfer, especially to low- and middle-income countries and communities, is essential for levelling out global access to clean, renewable energy.

SHE also addresses long-overlooked areas of ESG, such as lack of disability inclusion and social equity embodied within global supply chains, just as GHG emissions are.

It integrates diversity, equity and inclusion (DEI) into every step of ESG decision-making. By framing clean energy access as a human right, SHE transforms the conversation around climate justice. Programs like Women in Renewable Energy (WiRE) show how inclusive models can unlock innovation, build jobs, and expand leadership.

By grounding ESG in human empowerment, SHE shifts the purpose of sustainability from reporting metrics to building real-world effective change. It brings a sharper focus on distributed leadership, social justice, and community empowerment and resilience. This is not a minor adjustment. It is a new paradigm for corporate ESG responsibility that integrates social equity, environmental innovation, and digital intelligence into a single cohesive system. SHE is ESG reimagined for everyone.

3.2 Bridging Gaps

The **SHE Framework Model#1: Clean Energy Equity** bridges critical gaps between new energy wealth creation and the goals of SHE ESG—advancing environmental and social justice, poverty alleviation, and DEI writ large.

- **Global clean energy market growth is projected to reach USD 3.7 trillion by 2028** at a 9.4 percent CAGR *(Source: MarketWatch 2024).*

Despite improvements in air quality and human health, local communities often receive only a fraction of the new wealth created through the energy transition. Structural inequalities persist where vulnerable groups—particularly in emerging and developing economies—are excluded from meaningful economic participation.

Rising demand for rare-earth minerals used in clean energy production methods such as solar voltaics or wind turbines or in electric vehicle transport in emerging and developing economies can result in areas with already highly vulnerable populations and already suffering from the effects of rural poverty being even more susceptible to "new" abuses. Energy transition engineering requires numerous critical minerals such as lithium, nickel, cobalt, copper, and other rare-earth elements that are essential.

For example, cobalt mining in the Democratic Republic of Congo[17] has been tied to modern-day slavery, human trafficking, and as well as women and child labor, often under abusive working conditions. Importantly, "Women and girls living in cobalt-mining communities in the Democratic Republic of the Congo are reporting a ***staggering*** rise in serious reproductive health issues, including miscarriages and birth defects," according to a new report.

An investigation published by the UK-based human rights group Rights and Accountability in Development (RAID) and the Kinshasa-based

[17] Harvard Care Center, "Cobalt Red: Modern Slavery, Child Labor, and Cobalt Mining in the Democratic Republic of Congo," accessed September 22, 2024, https://youtu.be/zrF2vVoYCwI.

NGO Afrewatch[18] found that "women and girls living around cobalt mines reported experiencing irregular menstruations, urogenital infections, vaginal mycoses, and warts" (as reported in ***The Guardian*** on March 12, 2024).[19] In the case of cobalt mining, the Fair Cobalt Alliance[20] is fully intended to mitigate this.

Such human and worker rights, safety, and health abuses can frequently happen when local communities and peoples are excluded from any real earnings for their labor, as well as any collaborative participation in decision-making processes, undermining, if not outright prohibiting, anything resembling energy democracy.

Electric vehicle manufacturers and tech companies that rely heavily on critical minerals like cobalt must also be held accountable. While Tesla is a founding member of the aforementioned Fair Cobalt Alliance and published its first edition of The Conflict Minerals Report[21] in 2018, meaningful transparency and accountability in mineral sourcing remain limited.

Policies must be adaptable and inclusive to address these challenges. Considering the dynamic nature of clean energy expansion, innovative digital solutions like blockchain technology, smart contracts, and tokenization offer the potential for increased transparency, decentralization, and democratization of control—in other words, the pathway to environmental and social equity and justice.

The active inclusion of local and Indigenous communities in clean energy project design, the establishment of protected environment and community areas, and promotion of economic diversification are essential to ensuring that the "green transition" genuinely contributes to human empowerment, poverty alleviation, and DEI, in general, rather than perpetuating historic existing inequalities.

Having a strong regulatory framework is necessary to have clear and enforceable provisions to ensure compliance and market equity balance and stability. This includes giving local communities decision-making power and transparent access to benefits from infrastructure and energy development projects.

As a key component of DEI, it's also crucial to recognize that climate justice is an issue for people with disabilities who may face heightened risks and challenges from climate change. Extreme weather events can exacerbate existing health conditions, making everyday life even more difficult and potentially dangerous. For instance, people with mobility challenges may struggle to access emergency shelters or evacuate during natural disasters while those with visual or hearing impairments may have difficulty accessing early warning systems. In many countries, the lack of accessible infrastructure further compounds these risks.

Daphne Frias, an activist with Zero Hour,[22] a youth-led climate action group, shared in an interview[23] with *In These Times* how her cerebral palsy, which impairs her ability to sweat, has been increasingly aggravated by rising and record-setting temperatures attributable to climate change. Therefore, it is crucial to make sure that individuals with disabilities are part of the planning process for climate resilience. This is essential for creating a genuinely human-centered approach to ESG—one that tackles the entire range of social vulnerabilities and offers solutions that foster equity for everyone.

Additionally, people with disabilities often face high unemployment rates. Businesses and governments should invest in inclusive sustainability initiatives—such as inclusive urban design, accessible architecture, and green infrastructure development—creating jobs where lived experiences enhance impact.

[18] AFREWATCH, African Resource Watch, 2024, https://afrewatch.org/.

[19] "'Staggering' Rise in Women with Reproductive Health Issues Near DRC Cobalt Mines Study," The Guardian, March 2024, accessed September 22, 2024, https://www.theguardian.com/global-development/2024/mar/28/staggering-rise-in-women-en-with-reproductive-health-issues-near-drc-cobalt-mines-study#:~:text=Women%20and%20girls%20living%20in,according%20to%20a%20new%20report.

[20] Fair Cobalt Alliance, "Cobalt Credits: Incentivising and Enabling Responsible Artisanal Cobalt Production," Fair Cobalt Alliance, accessed September 22, 2024, https://www.faircobaltalliance.org/approach/responsible-cobalt-credits/.

[21] Tesla, "Tesla Conflict Minerals Report," Tesla, 2018, accessed September 22, 2023, https://www.tesla.com/sites/default/files/about/legal/2018-conflict-minerals-report.pdf.

[22] This Is Zero Hour, "Support Zero Hour and Amplify the Voices of Youth Organizing for Climate Action," 2024, accessed September 22, 2023, https://thisiszerohour.org/.

[23] Jessica Kutz, "Climate Justice Is a Disability Issue," July 2023, accessed September 22, 2023, https://inthesetimes.com/article/climate-environment-activists-disabilities-disabled-disability-barriers-accessibility-strike.

Designing with the needs and accessibility requirements of a minority group in mind often results in solutions that benefit the broader population, creating more inclusive and effective environments.

Some companies are already taking proactive steps to integrate sustainability and disability inclusion. A policy brief[24] by the International Labor Organization cites the example of Électricité de France (EDF)—a leading European producer of renewable power—which has expanded its renewable energy production from eight gigawatts (GW) to over fifty GW by 2030 for over twenty-five years. It states that in addition to its environmental goals, EDF has been a pioneer in disability inclusion. As a member of the ILO Global Business and Disability Network (GBDN), EDF has "established multi-stakeholder networks and governance mechanisms to support employees with disabilities." These initiatives foster an inclusive work environment and ensure people with disabilities have a voice in decision-making across their organization.

In the same vein, the SHE framework emphasizes the disparities in vulnerability to climate impacts. The Global South, which is home to more than 80 percent of the world's population, is facing the harshest impacts of climate change, even though it contributes the least to global emissions (Ritchie 2023).[25] Regions in Africa, South Asia, and Latin America are experiencing more severe climate impacts, including droughts, floods, and extreme weather events (Almulhim et al. 2024; Ngcamu 2023). For example, in Bangladesh, frequent flooding forces millions to leave their homes and worsens poverty, all while the country struggles with inadequate infrastructure that makes it difficult to handle these disasters effectively (Paszkowski et al. 2024). Despite this, countries in the Global South are under significant pressure from the Global North to sign climate agreements, often without getting the financial support or technology transfer they truly need. This imbalance highlights a significant shortcoming in the human-centered approach to ESG. The most vulnerable populations are facing the brunt of climate change's effects, yet they often do not have the means to adapt or lessen these impacts (Ritchie 2023).

ESG frameworks frequently face criticism for greenwashing, a tactic where companies make climate action claims without making any real changes. A key example is that women in the Global South bear the brunt of climate change, with UNDP (2022) reporting that women are fourteen times more likely to die in natural disasters. Okai (2022)[26] recalled that out of the 230,000 lives lost in the 2004 Indian Ocean tsunami, a staggering 70 percent were women. In Bangladesh, women and children are disproportionately affected by frequent flooding, facing not only physical displacement but also a loss of livelihoods.

These realities emphasize the importance of adopting a genuinely human-centered ESG approach. It's crucial to consider the specific vulnerabilities faced by women, people with disabilities, and marginalized communities, making sure their voices are at the forefront of climate action and policy-making.

3.3 Broadening DEI: Metrics for Equity in Energy, Work, Health, and Entrepreneurship

A range of metrics can be employed to assess equity across multiple dimensions, including energy security, labor market inclusion, political enfranchisement, educational empowerment, public health accessibility, and sustainable entrepreneurship.

Labor market inclusion:

a. **Labor Market Participation:** It can gauge the amount of minorities entering the workforce and seeking out higher-skilled, higher-paying jobs.
b. **Job Creation Rates:** Clean energy transitions can allow for burgeoning renewable energy industries. Deagriculturization and the growth of renewable energy alternatives can create new job opportunities as the product of industry creation and diversification.

[24] ILO, "Persons with Disabilities in a Just Transition to a Low-Carbon Economy," ILO, 2019 accessed September 22, 2023, https://www.ilo.org/media/405946/download.

[25] Ritchie H., "Global Inequalities in Co_2 Emissions: There Are Massive Differences in Emissions Across the World. How Do Income Groups and Regions Compare?" Our World in Data, retrieved March 19, 2025, https://ourworldindata.org/inequality-co2

[26] Asako Okai, "Women Are Hit Hardest in Disasters, So Why Are Responses Too Often Gender-Blind?" United Nations Development Program, retrieved March 19, 2025, https://www.undp.org/blog/women-are-hit-hardest-disasters-so-why-are-responses-too-often-gender-blind.

c. **Upskilling Rates:** As new markets and sustainable and circular industries emerge, it will be critical to evaluate the percentage of women who are filling job openings. These gender demographics can be tracked by the rates at which women are upskilling to enter jobs in renewable industries (e.g., solar energy farms, solar microgrid development, and maintenance).

Political enfranchisement:

a. **Political Inclusion in Energy Policy:** The percentage of women and people with disabilities in political and civil roles related to energy policy is a key indicator of their inclusion in decision-making processes.
b. **Gender or Disability-Segmented Voter Turnout Rates:** The voter turnout of women, for example, is integral to female representation in energy policy, as political discussions are shaped both by the individuals who hold appointive offices and by the citizens who elect their legislative policy representatives.
c. **Gender and Disability-Conscious Legislation Rates:** Another metric that can directly reflect inclusion in political spheres is both the quantity and quality of legislation that advocates for gender equity and inclusion. Tracking gender-conscious legislation can be a clear indicator of gender equality and disability inclusion.

Educational empowerment:

a. Education Rates Among Minorities: It can track how many minorities are seeking an education and are able to access higher education at any given point.
b. Secondary and Post-Secondary Graduation Rates: By tracking these rates, policymakers can observe whether minorities are retained in academia and continue their education through graduation, ensuring that they do not leave education programs before reaching graduation.
c. Adoption Rates of Digital Virtual Learning and Skills Training: By minimizing blackouts and brownouts, minorities and vulnerable populations can participate in global educational offerings through online forums such as digital university classes and web-based interactive video instruction, bridging the gap between education and access.

Public health accessibility and democratization:

a. **Health-Care Affordability Benchmarks:** Since health care is an energy-intensive sector, energy insecurity often results in inefficiencies, reduced performance quality, and increased operating expenses due to energy blackouts, brownouts, or grid distribution failures. As cities gain clean energy availability, comprehensive and efficient smart grid storage, transmission and distribution reliability, and security, the cost of health care services will be reduced, allowing at-risk and vulnerable populations to gain better access to essential services.
b. **Quality of Care Benchmarks:** Tracking the quality of patient care—through patient satisfaction surveying—can measure whether health care institutions are effectively serving diverse communities that have had a history of inaccessible public health infrastructure.
c. **Cost of Public Health Necessities:** By measuring the cost of health necessities, such as prescription drugs and sanitation products and equipment, policymakers can gauge the accessibility of public health essentials. In doing so, they can assess how clean energy transitions in public health settings can increase energy security and decrease production costs to minimize the prices of goods.

Sustainable entrepreneurship:

a. **Female- and Disability-Owned Businesses:** By tracking the percentage of these, policymakers can provide incentives for women and people with disabilities to find small businesses and engage in entrepreneurship to revitalize economies and allow for equality across industries.
b. **Voluntary Carbon Markets:** The potential for socially conscious carbon credit trading exchanges is truly worthy of consideration here. As an example, why would it not be

possible to share revenues from the sale of beneficial sale of carbon credits with the communities most highly impacted? Why would it not be possible to apply a portion of revenues from such sales to microlending programs that encourage small business entrepreneurship?



3.4 Specifics of the SHE ESG Framework Model#1: Clean Energy Equity

Table 1: Conceptual SHE Framework modified to the following heads

ENVIRONMENTAL	SOCIAL	GOVERNANCE
Clean energy justice	Equity and inclusion	Data accessibility, authenticity, public transparency
Climate change resilience and adaptation	Public health democratization	Diversity-inclusive leadership and political enfranchisement
	Supply chain social justice	

ENVIRONMENTAL

Clean-energy justice

a. Corporations must ensure the development of and equitable access to clean, affordable energy, prioritizing the communities and regions in which they operate and extending this responsibility nationally and globally where possible.

b. Corporations are required to implement or participate in decentralized, community-owned, and operated renewable energy generation, storage, transmission, and distribution projects.

c. Corporations must prioritize underserved and impoverished communities, measuring the impact through increased access to clean energy and reduced energy poverty in target communities.

Climate-change resilience and adaptability

a. Corporations must, in collaboration with all stakeholders, develop strategies that address the disproportionate impacts of climate change on impoverished and vulnerable populations and communities in emerging and developing regions.

SOCIAL

Equity and inclusion

a. Corporations must foster an inclusive corporate culture that values DEI at all levels and in all forms, including gender, disability, and other underrepresented diverse groups.

b. Corporations must implement accessible digital and physical environments.

c. Corporations must adopt supportive and inclusive practices across all operations.

Poverty alleviation and economic empowerment:

a. Corporations must integrate poverty reduction into overall business strategies, focusing on job creation, skills training, and upskilling.

b. Corporations must support DEI access to economic participation, particularly for underrepresented groups.

c. Corporations must consider poverty reduction in their business strategies,

particularly by empowering local communities to bid for contracts (supplier and project management) where appropriate.

d. Corporations must develop affordable products and services tailored to meet the needs of low-income markets.

e. Local entrepreneurship, microfinance programs, and job opportunity initiatives should be encouraged in high-poverty areas.

f. Corporations must assess DEI and report on its impacts by tracking changes in local employment rates and income levels.

Public health democratization

a. Corporations are encouraged to address the intersection of clean energy and health care, focusing on DEI availability, accessibility, and affordability, particularly for vulnerable populations.

Supply chain social justice

a. Corporations are responsible for ensuring fair labor practices, ethical sourcing, and DEI policies throughout the entire supply chain.

b. Supplier audits and reporting should be implemented to adhere to GHG (emissions) protocols and social DEI standards.

c. Local communities' supply-chain players should be considered and empowered to provide resources, materials, and products to corporations when possible. Suppliers should receive training and support to meet necessary industry standards.

d. Encourage "*voice of the worker*" programs.

e. Improvements in working conditions and wage levels across the supply chain should be tracked, with a particular focus on local community suppliers and transparent reporting

GOVERNANCE

Data accessibility, authenticity, public transparency

a. Corporations should enhance stakeholder and public accessibility and transparency in ESG reporting by utilizing user-friendly digital data visualization platforms, ensuring inclusivity for all stakeholders.

Energy democracy and participation

a. Corporations should empower community stakeholders in clean energy policy, planning, and development decision-making, with a focus on increasing DEI participation in clean energy policy and projects.

b. Local clean-energy governing committees shall involve representatives from local community stakeholders with real decision-making power.

c. Corporations may explore and encourage equitable community ownership and governance participation.

d. Measure and report success through the attainment levels of local community stakeholders, workforce participation, and community satisfaction with their clean energy initiatives.

Inclusive leadership and political enfranchisement

a. Corporations must promote DEI in corporate, community, political, and administrative-agency leadership, ensuring these leaders advocate for diversity and inclusion policies.

b. Corporations must support initiatives aimed at increasing the political participation of underrepresented groups in governance.



4. SHE Framework Model #1: Clean Energy Equity "Phase-Wise" Implementation

Phase 1: Assessment and planning

This phase lays the foundation for next-level ESG: the successful implementation of the SHE Framework for each new program and project "model" business case, each with its own unique, bespoke characteristics relative to the SHE Framework. It begins with ensuring top-level (by name and title) executive commitment and as a "champion."

SHE Framework is given dedicated leadership for both Framework and model initiatives from both the corporate sponsor and the intended co-owning (if possible) collaborative community stakeholder partners. The corporate sponsor champion should fully understand that this is not to be a top-down mandate but rather a bottom-up buy-in participation of the corporate workforce as a living practice of community building as a corporate value.

A comprehensive assessment is conducted across all SHE metrics to first establish a baseline and then identify gaps and priorities, likely by identifying areas where "early wins" help build stakeholder community confidence.

Additionally, diverse stakeholder groups are formed and engaged as, first, planning advisory panels, to be followed by the formation of empowered functional working groups, ensuring all-stakeholder-inclusive collaborative inputs and approaches from the start.

This phase aims to generate a developmental roadmap for the entire model implementation process, establishing a clear understanding of the current baseline state and the achievement path forward.

Phase 2: Model#1 program or project strategy and design, build, operate, and maintain

Model Development from comprehensive knowledge, insights, and benchmarks gained during *phase 1 above.* Specific, measurable targets should be established for each SHE Framework category of the model version being developed, with clear, precise short-term *(with an "early wins" focus)*, mid-term, and long-term objectives.

Policies will be developed, recommended, or updated to align with SHE Framework principles, and detailed action plans will be created for each focus area of the model. Resource planning is a key component, with budget needs projection, personnel assigned to model initiatives, and potential collaborative partnerships identified. This phase transforms the SHE Framework from a strategic "concept" to an "action" operating plan.

Phase 3: The initial implementation

This phase entails the translation of the SHE Framework into a project model. Nothing planned for in the model should vary from the first principles of the SHE Framework, and no changes should be made to implementing a model plan that isn't, first, ensured to align with the Framework. Workshops, training courses, and achievement of certifications on SHE Framework principles shall be delivered continuously to build knowledge and skills broadly among all internal and external community stakeholders. This "bakes into" the model of methodological consistency and process continuity. This phase also entails the integration of knowledge and skills training on the necessary human capital and technological solutions, as well as both physical and digital infrastructure planning and development and improvement for the successful implementation of SHE Framework model projects.

Proof of concept pilots of minimal viable product (MVP) pilot demonstration projects in high-priority

areas are launched, providing the opportunity for quick adjustments and, again, early wins to build buy-in confidence and momentum, demonstrate unique value propositions (UVP), and serve as a benchmarking for next-phase funding and development.

This phase is crucial for embedding SHE Framework principles into the organization and its collaborative stakeholders and cultures, thus setting the stage for broader and deeper implementation.

Phase 4: Integration and expansion

In this phase, the SHE Framework and program/project models are extended beyond the organization's traditional and immediate boundaries in this phase. It involves integrating SHE Framework criteria into the full value chain, from supply chain management and logistics up through to production programs and out through to local cooperative, collaborative, co-ownership stakeholder communities.

Community engagement intensifies with the initiation of local projects and partnerships. Products and services are reviewed and adapted to align with SHE principles, potentially leading to new models and offerings that address identified needs. This phase solidifies the organization's commitment to holistic sustainability and social impact.

Phase 5: Monitoring, measuring, verifying, and reporting

Monitoring and measuring is implemented and executed simultaneously with other phases to ensure transparency, performance accountability, and improvement measurement. AI-enabled and automated data collection and analytics are implemented across all metrics.

Regular, comprehensive, transparent, and accessible DEI in ESG reporting is developed for all stakeholders' information and feedback. Program strategies are regularly reviewed and adjusted based on data and feedback, ensuring that solution approaches remain current and effective or are modified with new and superior knowledge—and, again, in full alignment and approval for the model with the SHE Framework. This phase embeds a culture of all-stakeholder open collaboration, continuous learning, and rapid adaptability to changing circumstances.

Phase 6: Advanced Implementation

In the final phase, the organization focuses on leadership and long-term value creation. Organizations develop innovative digital technology solutions to persistent challenges and share best practices, advocating for industry-wide adoption of SHE Framework principles.

All-stakeholder collaboration expands to include recognized independent subject-matter expert advisers, industry peer organizations, relevant government agencies, and NGOs, all contributing to SHE Framework policy development and standards-setting. SHE Framework principles are fully integrated into core business strategies, demonstrating and communicating their long-term value. This phase establishes the organization's position as a leader in sustainable, human-empowered business practices.

Scoring and Integration

1. Each component is scored on a scale of 0–100 based on established industry standards and benchmarks.
2. Overall SHE scores are calculated in accordance with weighted averages of component scores.
3. Companies report on these metrics annually, with a third-party audit and verification.
4. The SHE Framework allows for industry-specific adjustments in score-weighting



5. CONCLUSION

The Digital Economist Sustainability Workgroup team, which developed the SHE ESG Framework, fully understands that this is the first tentative step on a long road to acceptance and implementation. That said, it represents (insofar as we know) the first design and systems-thinking overhaul to ESG, particularly at a time when a number of high-visibility brands are backpedaling Justice, Equity, Diversity, Inclusion (JEDI)—the latest large multinational corporation, as of publication date, being Ford Motor Company.

The team that worked on this understands the enormity of the challenges in any attempt to recast investor and corporate leadership behavior. We ask, however, and in light of the intent of this book *Healing a Broken World* to ask yourselves when is it, exactly, that we begin the quality of conversations necessary to heal the Earth from the mounting costs and effects of climate change?

So if you find this sufficiently interesting, we look forward to chatting with you at The Digital Economist. We know this is a first-step work in progress. Are you willing to openly consider taking that step with us?

Appendix

A. Interview with Aldyen Donnelly

1. Integrated ESG Reporting in Standard Financial Statements
    a. Focus on high-level, easily understandable metrics integrated into standard financial reports.
    b. Mandate disclosure of emissions per dollar of earnings in financial reports.
    c. Report potential GHG emissions from proved and unproved reserves on balance sheets.
    d. Disclose GHG implications of capital expenditure plans in cash flow statements.
    e. These measures would do the following:
        - Increase transparency and comparability of corporate environmental performance
        - Align climate considerations with core financial metrics
        - Drive meaningful conversations about sustainability among investors and stakeholders
        - Encourage companies to improve carbon efficiency and shift toward sustainable strategies
2. Comprehensive Corporate Reporting by Nationality
    a. Standardize reporting of revenue, employment, payroll, and taxes paid by country.
    b. Mandate reporting of employee demographics (including disabled workers and gender) by nationality.
    c. This would
        - highlight global disparities in corporate practices
        - promote fair wages and working conditions across all nationalities
        - encourage inclusivity and diversity in global operations
3. Prioritizing Key Values in Policy Decisions
    a. Focus on five key areas: clean water supply, secure food supply, safe and affordable shelter, energy, and access to nature.
    b. This approach ensures that sustainability efforts address fundamental human needs and environmental concerns.
4. Energy Resilience and Community Empowerment
    a. Prioritize micropower grid development for local energy resilience.
    b. Promote community involvement in energy decision-making.

5. Addressing Poverty and Inequality
    a. Promote integrated social housing within broader communities to reduce economic segregation.
    b. Use nationality-based reporting to address wage disparities and promote fair labor practices globally.

6. Transparency and Accountability Measures
    a. Make nationality-based reporting standards in financial disclosures.

B. Interview with Catherine Atkin

1. Social Justice and Equity Value Chain
    a. Indicators should be identified to measure a company's effort to ensure social justice throughout its full value chain.
    b. The Expert suggested the EU's Corporate Sustainability Due Diligence (CSDD) as a potential framework for the measurement.
    c. The EU's Corporate Sustainability Reporting Directive (CSRD) shall also be used as a point of reference, which will ensure companies provide extensive, regulated, and mandatory disclosure of their value chain impact on the environment and community.

2. Workers' Rights, Living Wage, and Slavery
    a. Catherine Atkin highlighted the complexities of upholding workers' rights in different countries. She mentioned the tension between corporations' responsibility to meet basic human rights standards and the potential negative impacts on local communities and ecosystems.
    b. The concept of a "living wage" and the challenges of defining it, as well as the measures to be taken if a company fails to prove the standard "living wage," are highlighted.

3. Climate Resilience and Policy Implementation
    a. The importance of climate resilience and policies that benefit the local communities and developing economies has been highlighted.
    b. Climate adaptation measures should be quantifiable to understand and balance mitigation strategies, biodiversity, and adoption benefits.
    c. Successful policy implementation and the strong political will [and pressure] in the effective and equitable distribution of resources should be ensured.

4. Women in Leadership and Clean Energy Metrics
    a. The underrepresentation of women in leadership positions is well highlighted, and the potential positive impact of women holding leadership positions in both the community and politics has been stressed.

5. Clean Energy
    a. Prioritize measuring the company's contribution to clean energy.
    b. The government should implement stringent policies for companies to create a cleaner energy grid.

6. Decarbonization, Democratic Participation, and Company Roles
    a. Big companies have a huge role to play in democratic decision-making, particularly in their supply chains and the country in which they operate.
    b. Collective consciousness and actions among customers force companies to improve their ecological footprint at both local and global levels and throughout their supply chain.
    c. Mandatory reporting and regulation should be emphasized to encourage companies to reduce their carbon footprint.
    d. Potential impact of sound and strict

government policies and intervention on companies and their supply chains.

7. AI, Decarbonization, and Equitable Access
    a. The potential of artificial intelligence (AI) in improving data collection and reporting, particularly in the context of decarbonization, has been highlighted.
    b. Emphasis on open access to data and the potential of digital taxonomies like XBRL for easier data aggregation has been put in the discussion.
    c. AI has the potential to empower individuals and small businesses through automatic tasks and provide climate-resilient insights. However, due to its high cost, the technology's accessibility is limited to only large cities and big companies.

8. Addressing Poverty Reduction and ESG Framework
    a. Rather than the effectiveness of the ESG framework in measuring companies' efforts in poverty reduction, the interviewer suggested that supply chain regulation could be a better way to ensure companies' responsibility and obligation toward the climate.
    b. Inclusion and diversity strategies in the current ESG framework, and the role of big corporations in policy formulation.

9. Assessing Diversity's Impact on Companies
    a. Quantifying and assessing the impact of diversity and inclusion policies and programs within companies is emphasized.
    b. Companies that include a diverse population—women and persons with disability—in their workforce experience a positive impact on their profit margins.
    c. The inclusion and diversity principle needs data support for its implementation.
    d. The significance of strategies and structures specific to different populations is highlighted, allowing for better feedback and decision-making power.

C. Interview with Reid Jewett Smith: Disability:IN

We spoke with Reid about her work at Disability:IN and the significance of disability inclusion in ESG. She highlighted that disability is a critical aspect of sustainability and that a disability-inclusive company is smart. Reid also discussed the importance of the upcoming European Accessibility Act, which will become law in all twenty-seven EU member states on June 28, 2025, and the Corporate Sustainability Reporting Directive, which will replace voluntary disability disclosures in business with standardized materiality assessments.

In addition, she underscored the need for commitment to inclusive suppliers, asking if companies allocate a specific amount of their budget to disability-owned businesses. She suggested a useful metric could be whether companies inquire if their suppliers' products and services are accessible. Reid further emphasized the importance of self-identification (self-ID), how many employees engage with it, and board diversity disclosures in human capital management reporting.



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THE DIGITAL ECONOMIST

Healing A Broken World

Trust in a Broken World

Carbon Credits and Blockchain

Dr. Nikhil Varma, Océane Desvigne, and Bruce Armstrong Taylor




Carbon credits can be a legitimate
way forward, if we can trust them.

1. Setting the Scene

As I stepped into the local grocery store, the scent of fresh produce—crisp apples, ripe tomatoes, and fragrant herbs—enveloped me, creating an inviting atmosphere that felt almost nurturing. The vibrant colors of fruits and vegetables beckoned from their displays, each a testament to nature's bounty. It was a scene I had witnessed countless times, yet today, it stirred a deeper reflection within me—trust, particularly in the choices we make about the food we consume.

Every shopper around me was engaged in a personal ritual, their decisions shaped by a complex tapestry of values and priorities. I watched a mother carefully inspecting the labels on canned goods; her brow furrowed in concentration as she searched for hidden sugars and preservatives that could adversely affect her children's health. Nearby, a young couple debated animatedly over the merits of organic versus conventional produce, their voices a mix of passion and concern for their well-being and the environment. A few aisles over, an older gentleman reached for a familiar brand, confident in its quality and ethical sourcing—his loyalty rooted in years of positive experiences.

This simple act of shopping mirrored the intricacies of our existence, where every choice reflects not only personal preferences but also broader implications for health and sustainability. Some shoppers prioritize nutrition, driven by a desire to nourish their bodies, believing that the right choices can lead to better health outcomes. Others are motivated by ethical considerations, conscious of the environmental impact of their purchases, and striving to support brands that align with their values. Yet, there are also those who focus solely on price, seeking the best deals without considering the long-term effects of their choices.

In this vibrant marketplace, the decisions we make about food have a profound impact on our well-being, echoing the complexities of trust in the realm of carbon credits and environmental responsibility. Just as my fellow shoppers navigate a sea of options, individuals and companies grapple with choices in a marketplace filled with promises, each decision influenced by their understanding of trust. The grocery store became a microcosm of the larger economic landscape, highlighting the delicate balance between informed choices and the skepticism that often surrounds them.



2. Trust in Human Relationships and Decision-Making

Trust is a fundamental aspect of human relationships and decision-making, deeply embedded in our psychology. It serves as the bedrock upon which we build connections, whether personal, professional, or societal. At its core, trust enables individuals to engage with one another, offering a sense of safety that encourages open communication, collaboration, and vulnerability. Psychologists have extensively explored these constructs, revealing that trust is not merely a social construct but a psychological necessity that influences our interactions and choices, often without our conscious awareness.

At its core, trust can be defined as the belief in the reliability, truth, or ability of someone or something. One influential theory in psychology is the Trust Game, developed by Berg, Dickhaut, and McCabe (1995). In this game, participants must decide how much to invest in a scenario where their partner's actions can either lead to mutual benefit or betrayal. The outcomes often highlight the delicate balance between risk and reward, illustrating how trust is built and eroded based on past experiences.

Another pertinent framework is **Attachment Theory**, proposed by Bowlby (1979), which suggests that our early relationships with caregivers shape our ability to trust others later in life. Secure attachments foster a sense of safety and trust while insecure attachments can lead to skepticism and wariness. This developmental perspective indicates that our capacity to trust is often rooted in our formative experiences, influencing how we perceive relationships throughout our lives.

Human relationships are built on various constructs, including communication, empathy, reciprocity, and reliability. Effective communication fosters understanding while empathy allows individuals to connect on an emotional level, recognizing and validating each other's feelings. Reciprocity and mutual exchange reinforce relationships by creating a balance of give-and-take while reliability ensures that individuals can depend on one another. Trust weaves these elements together, enhancing the quality of our interactions and enabling deeper connections.

In decision-making, trust plays a critical role. When faced with choices, individuals often rely on their assessments of others' trustworthiness. Decisions are influenced not just by rational evaluations but also by emotional factors. In situations requiring collaboration, trust can facilitate risk-taking and innovation, as individuals feel secure enough to share ideas and pursue common goals. Conversely, a lack of trust can lead to hesitancy, defensiveness, and conflict, ultimately stifling cooperation and progress.

Over the years, the models of trust have evolved, significantly influenced by technological advancements. In the past, trust was primarily established through personal interactions and direct experiences. People relied on face-to-face communication and community ties to gauge trustworthiness, often forming opinions based on reputation and social standing. However, as technology has become increasingly embedded in our daily lives, the dynamics of trust have shifted.

Digital interactions have transformed how we establish and maintain trust. Online platforms, social media, and e-commerce have introduced new variables, making it possible to connect with others without physical presence. This shift has led to the emergence of new trust models, such as reputation systems and peer reviews, which allow individuals to assess trustworthiness based on

collective feedback rather than personal experience alone. Yet, these Web 2.0 systems are now under scrutiny, as they are often controlled and manipulated by centralized power structures. This centralization can lead to biases, misinformation, and a lack of accountability, eroding the very trust these platforms aim to foster.

In response to these challenges, the rise of blockchain technology and smart contracts introduces a level of transparency and security that was previously unattainable. These innovations provide verifiable records of transactions and interactions, helping to build trust in environments where traditional relationships may not exist. Blockchain empowers individuals, allowing them to engage in economic activities with a sense of assurance, even with parties they have never met. This decentralized revolution offers a compelling alternative to the vulnerabilities of Web 2.0 systems, fostering a new era of trust based on transparency and mutual verification.

Trust is a crucial construct in human relationships and decision-making, serving as the foundation for cooperation and social bonds. The evolution of trust models over the years, particularly considering technological advancements, reflects the changing nature of how we interact and make decisions. As we continue to integrate technology into our lives, understanding the dynamics of trust will be essential in fostering meaningful connections and navigating the complexities of modern society.

3. Trust in the Grocery Store

As I navigated the aisles of the grocery store, I observed how these theories played out in the choices of those around me. The mother scrutinizing ingredient labels exemplified a cautious approach to trust, likely stemming from a protective instinct developed through her own experiences. Her decisions reflected a desire to ensure the health and safety of her family, revealing a deeply ingrained need for reliability in the products she chooses. This meticulousness not only showcases her commitment to her family's well-being but also highlights a broader societal trend toward health consciousness. She embodies a generation of consumers who are increasingly aware of the implications of food choices, often driven by past experiences with products that did not meet expectations, thus shaping her approach to trust.

In contrast, the young couple debating organic versus conventional produce showcased a different dynamic of trust. Their discussion highlighted the balance between personal values and societal pressures. They were not merely concerned about quality; they were also navigating the moral implications of their choices. This couple exemplifies the evolving nature of trust in consumer behavior, where external influences—such as media narratives, peer influences, and a growing awareness of environmental issues—play a critical role. Their conversation reflected a broader cultural shift toward sustainability, indicating that trust is not just about product reliability but also about aligning purchases with ethical beliefs and social responsibility. This multifaceted approach demonstrates how trust can be context-dependent, influenced by a complex web of values, beliefs, and societal expectations.

The older gentleman, loyal to his familiar brand, embodied a more traditional form of trust. His decades of experience with that brand created a sense of reliability that transcended mere product attributes. For him, trust was a matter of consistency, shaped by years of positive interactions, which solidified his belief in the brand's integrity. This loyalty illustrates how trust can be built over time through repeated positive experiences, reinforcing a sense of security in his choices. His trust is not easily swayed by trends or new information; instead, it reflects a deep-seated connection to a brand that has consistently met his needs. This reliance on familiarity speaks to a

broader theme in consumer behavior, where long-standing relationships with brands can foster a sense of community and belonging, further entrenching the trust that guides his decisions.

4. Connecting to Carbon Credits

This exploration of trust in the grocery store can be paralleled with our interactions in the realm of carbon credits. Just as shoppers evaluate products based on their trust levels, individuals and companies approach carbon credits with varying degrees of skepticism and belief. Carbon credits are a crucial mechanism in the fight against climate change, representing a permit that allows the holder to emit a certain amount of carbon dioxide or other greenhouse gases. The fundamental purpose of carbon credits is to incentivize the removals or reductions of greenhouse gas emissions, encouraging projects that contribute to sustainability and environmental health. However, the challenges inherent in this system often complicate the establishment of trust.

The complexity of carbon markets means that we are often distanced from the processes that create these credits. Carbon credits can be generated through various projects, such as reforestation, renewable energy installations, or methane capture from landfills. However, the effectiveness of these credits relies heavily on the project's actual impact on emissions. Trust becomes crucial in understanding their validity and effectiveness. The lack of transparency in how these credits are generated and verified can lead to doubt.

Questions arise: *Are they truly offsetting the emissions they claim to? Are the claims backed by rigorous science, or are they simply marketing tools?*

Without a clear framework and reliable verification processes, skepticism can flourish, much like the uncertainty shoppers feel when faced with vague product claims. This distance from the source of emissions reductions or removals can create a barrier to trust, as many stakeholders may not fully understand the intricacies involved in the generation of these credits.

5. Implications of Trust in Carbon Credits

The implications of trust in carbon credits are significant and multifaceted. A robust system that fosters transparency and accountability can enhance trust, encouraging more participants to engage in carbon markets. For instance, projects that provide detailed reporting and third-party verification of their emissions can build credibility, reassuring buyers that their investments are contributing to genuine environmental benefits, these are generally considered as high-integrity carbon credits. This can be further reflected in the prices, where the average for low-integrity carbon credits is $4, compared to $10 for high-integrity carbon credits (Procton et al. 2024). A lack of trust can hinder progress in sustainability efforts, as companies may shy away from investing in credits they perceive as unreliable, fearing reputational damage or ineffective mitigation of their own emissions.

Different stakeholders value carbon credits based on their trust levels. Companies with strong environmental commitments may prioritize high-quality credits, seeking assurance that their investments contribute to genuine emissions reductions or removals. They often look for certifications from reputable standards, such as the Verified Carbon Standard/Verra or the Gold Standard, which provide guidelines for project validation and verification. Meanwhile, others might opt for cheaper, less verified options driven by cost rather than conviction. This disparity highlights how trust shapes not only individual choices but also broader market dynamics. When trust is lacking, it can lead to a market flooded with low-quality credits, undermining the entire system's integrity and effectiveness.

The subjective nature of trust introduces human factors that can lead to a lack of confidence in carbon credits. Personal experiences, media narratives, and peer influences can all shape perceptions. For instance, if a company has previously invested in credits that failed to deliver promised results, it may become hesitant to engage with the carbon market again. This cycle of distrust can result in fewer investments in sustainable projects, ultimately making them less viable and less sustainable over time. This is evidenced by the drop in demand following controversies over the integrity of certain carbon credits. The market had been steadily rising until 2022, when the primary market was valued at $1.147 billion, compared to $1.139 billion in 2023 (Turner et al. 2023).

6. The Vicious Cycle of Centrality and Trust

In exploring the dynamics of trust, we can draw a compelling parallel between our grocery shopping experiences and the structure of carbon markets. Consider a roadside farmers market, where local farmers sell their produce directly to consumers. Here, trust operates in a fundamentally different way than in centralized grocery stores. Shoppers often gravitate toward farmers markets because of their proximity to the source of their food. The direct interaction with farmers creates a sense of authenticity and transparency that many find lacking in larger, centralized systems.

At farmers market, the absence of large brands fosters a unique environment of trust. Consumers often feel a personal connection to the growers, knowing they can ask questions about farming practices and the origins of the produce. This decentralization allows for a more intimate exchange of information, where trust is built through relationships rather than marketing claims. Price, while a factor, is often secondary to the perceived quality and integrity of the products. Shoppers are willing to pay a premium to ensure that they support local agriculture and sustainable practices.

7. The Centrality of Carbon Markets

In stark contrast to the intimate atmosphere of farmer's markets, carbon markets are characterized by their centralization. Just as a large supermarket can feel impersonal and overwhelming compared to a quaint local market, carbon markets often lack the transparency and personal connection that foster trust among participants. In a supermarket, shoppers might encounter products from all over the world, each with varying degrees of labeling and marketing claims. Similarly, carbon credits are typically generated by large projects that may be geographically distant from the buyers, creating a disconnect that can lead to skepticism.

For instance, when you pick up a product in a supermarket, you may notice glossy packaging that touts sustainability, but without a personal connection to the producer, it’s difficult to assess the truth behind those claims. This is akin to the carbon market, where credits might be marketed as offsets for emissions, yet buyers are left wondering: Are these credits genuinely contributing to emissions reductions or removals? Is the process transparent enough for buyers to feel confident in their investments? Just as consumers in supermarkets often feel lost amid a sea of options, stakeholders in carbon markets can feel uncertain about the legitimacy of their investments.

7.1 The Farmers Market Analogy

The question arises: Should we create a "farmers market" for carbon credits? Imagine a decentralized platform where smaller projects could connect directly with buyers, much like local farmers showcasing their produce. In a farmers market, shoppers can engage with the growers, ask about their practices, and even sample the goods before making a purchase. This personal interaction builds a sense of trust that is rarely found in centralized systems.

However, while the idea of a decentralized carbon credit market could enhance trust through transparency and accountability, scalability emerges as a significant concern. Just as farmers market may struggle to accommodate a large number of vendors while maintaining quality control, a decentralized model for carbon credits might introduce challenges in standardization and verification. Would too much decentralization dilute the effectiveness of carbon credits, making it more difficult to ensure quality and reliability?

7.2 Balancing Trust and Scalability

In supermarkets, we often see organic and local sections that cater to consumers seeking trustworthy options, yet these sections must still adhere to overarching regulatory standards. Similarly, a hybrid approach to carbon markets could blend the benefits of decentralization with the need for rigorous oversight. By establishing a framework that allows for local engagement—like that found in farmers market—while still implementing standardized verification processes, we could create a system that promotes both trust and scalability.

This balance is crucial. If carbon markets can incorporate a model that allows for direct interactions and local accountability, akin to the farmers market experience, they could significantly enhance their trust among stakeholders. Just as consumers are more likely to buy local produce when they know the story behind it, businesses and individuals would feel more confident investing in carbon credits if they could directly connect with the projects generating them.

The challenge lies in creating a carbon market that mimics the trust-building aspects of farmers markets while maintaining the scalability necessary for global impact. By fostering local engagement and transparency, we can work toward a carbon credit system that resonates with consumers' values, making it a more reliable and effective tool in the fight against climate change. Just as shoppers feel empowered in a farmers market, so too could participants in a reimagined carbon market thrive on trust and community, paving the way for a sustainable future.

8. The Cost of Scalability

As we consider the scalability of decentralized carbon markets, we must confront the inherent trade-offs involved. Centralized systems can achieve efficiency and broader reach, but they often do so at the expense of transparency and local engagement. Conversely, decentralized models may enhance trust but struggle to scale effectively. This dichotomy raises critical questions about the cost of scalability in the carbon market: Are we sacrificing essential elements of trust and community for broader participation and market growth?

8.1 The Technology Trust Paradox

The advent of technology has the potential to break down barriers and democratize access to carbon markets. However, it also implicitly requires that users trust the systems in place. Technologies like blockchain, for example, promise transparency and traceability in carbon credit transactions, yet the centralization of technology companies can lead to skepticism. Consumers and organizations may question whether these platforms truly deliver on their promises or if they are merely marketing tools designed to enhance profitability.

Research has shown that while technology can facilitate trust through improved data sharing and verification processes (Singh and Teng 2016), trust between individuals and trust in information technology (IT) are inherently different. Humans exhibit qualities like benevolence and integrity, which cannot be straightforwardly attributed to IT without the inappropriate humanization of technology. When trusting individuals, we rely on

their ethical judgment and autonomy. Conversely, trusting IT involves relying on an artificial tool designed to perform specific functions devoid of personal will or ethical consciousness.

IT systems are characterized by their functionalities and reliability rather than moral or volitional attributes. For example, it is not accurate to claim that IT systems demonstrate care (akin to human benevolence) or truthfulness (comparable to human integrity). Consider the choice between a human security guard and a surveillance system. The decision entails comparing the guard's personal commitment and skill against the surveillance system's capability to monitor consistently. Trust in technology is based on expectations of its performance, not on any intentions or motives it might have. Since a surveillance system may not adapt quickly to novel threats or contexts like a human guard, it is trusted less for complex and dynamic security needs.

The trust we place in IT has significant implications:

- It impacts the adoption of technology. Users are less likely to engage with software that they do not trust to meet their needs reliably.
- It shapes other perceptions of IT, such as its perceived advantage or utility, which can influence attitudes and intentions regarding technology use.

Trust in technology develops similarly to trust in people. Initially, it is fostered by well-designed user interfaces and positive vendor reputations. Over time, consistent reliability, dependability, and quality of IT performance become crucial. Effective support functions also play an essential role in building trust. The overall quality of the system infrastructure is critical, as deficiencies in one area can adversely affect trust across various aspects.

8.2 Implications for Carbon Markets

In the context of carbon markets, the challenge of trust becomes even more pronounced. The reliance on centralized platforms often leads to a significant lack of transparency. When algorithms and data used for credit verification are not accessible or understandable to the average user, skepticism arises. This situation mirrors the doubts consumers frequently have in supermarkets, where they question the authenticity of claims made by large brands regarding sustainability and ethical sourcing. Just as shoppers may wonder whether a product labeled "organic" truly meets those standards, participants in carbon markets may doubt the legitimacy of carbon credits issued by centralized systems.

The centralized nature of many carbon credit platforms fosters a perception that these systems prioritize profit over genuine environmental impact. This perception can be damaging; if stakeholders believe that financial motives overshadow environmental integrity, they may choose to disengage from the market altogether. The lack of transparency creates a barrier to trust, which is crucial for the growth and effectiveness of carbon markets. Blum (2020) highlights the challenges in the voluntary carbon markets have resulted in questioning the legitimacy of global carbon offset markets post-Paris Agreement (2015–2018). Through thirty-seven stakeholder interviews, the article reveals ongoing debates over the effectiveness of carbon offsetting, with some stakeholders advocating for alternatives due to concerns like double counting. Despite these challenges, there is still significant trust in carbon markets as a viable climate solution. The findings suggest that new international emission trading frameworks may develop under article 6 of the Paris Agreement.

Miltenberger, Jospe, and Pittman (2021), on the other hand, highlight that the current climate action is insufficient compared to global ambitions and

scientific recommendations. Voluntary carbon markets (VCMs) are seen as a potential solution despite facing criticism for being opaque and ineffective. However, these challenges can be resolved and are essential for advancing climate goals. By 2050, we envision market-based solutions becoming integral to our economies, promoting significant decarbonization and innovation. Pricing carbon is crucial for this transition, and while VCMs need improvements, they should be supported to maximize their impact.

This erosion of trust can significantly impact scalability. If stakeholders—be they businesses, investors, or consumers—do not believe in the validity of carbon credits produced through centralized systems, they are likely to hesitate in their investments. This reluctance to engage limits market growth and undermines the potential for widespread adoption of carbon offsetting practices. A Carbon Trust 2023 impact report emphasizes that without addressing these trust issues, the potential for broad participation in carbon markets remains stunted, ultimately hampering global sustainability efforts (TRUST 2023).

Moreover, the implications extend beyond just market participation. A lack of trust can lead to regulatory challenges, as governments may become hesitant to endorse or support carbon markets perceived as lacking integrity. This uncertainty can stifle innovation and deter new entrants into the market, further entrenching existing players and limiting competition.

To foster a more robust carbon market, it is essential to prioritize transparency and accountability. By adopting practices that make data and algorithms more accessible, stakeholders can begin to rebuild trust. Initiatives that promote collaboration between carbon credit producers and consumers, akin to the relationships formed in local farmer's markets, can also help bridge the gap of skepticism.

Ultimately, addressing the challenges of trust and transparency in carbon markets is not just an ethical imperative; it is a critical factor in ensuring the scalability and effectiveness of these markets in combating climate change. Without a concerted effort to build trust, the potential of carbon markets to drive meaningful environmental impact will remain unrealized.

8.3 Finding a Balance

To create a trustworthy and scalable carbon market, we must focus on consumer convenience and alignment as a transitionary process. History shows us that technology often transforms society in phased manners, which can provide valuable insights for our approach. Consider the evolution of mobile phones. Initially, they were bulky and primarily used for calls. As technology advanced, features like texting and internet access were gradually introduced. Consumers adapted to these changes, and over time, smartphones became essential tools for daily life. This gradual integration built trust and familiarity, allowing users to embrace new capabilities.

Another example is the transition from physical to digital banking. Initially, consumers were introduced to online banking as a supplementary option alongside the traditional branch. Over time, as users became more comfortable with digital transactions, online banking evolved into a primary means of managing finances. This gradual shift built trust in the technology while maintaining the familiar banking structure.

Similarly, the rise of e-commerce followed a phased approach. Early adopters of online shopping initially used platforms like Amazon for select purchases, often supplemented by traditional retail experiences. As technology improved and security measures enhanced, consumers gradually shifted to online shopping as their primary method of retail engagement, resulting in a complete transformation

of the shopping landscape. The shift from physical media to streaming services illustrates a phased transition. Platforms like Netflix started with DVD rentals before evolving into a comprehensive streaming service. This gradual change allowed consumers to adapt, making the transition feel natural and convenient.

In the context of carbon markets, we can adopt a similar approach. By prioritizing consumer convenience, we can create a system that feels familiar and accessible. For example, introducing simple, user-friendly interfaces for tracking carbon credits can help users engage without feeling overwhelmed by complexity.

By drawing on these successful transitions in other sectors, we can demonstrate that a phased approach helps build trust and encourages participation. As consumers experience the benefits of a more transparent and engaging system, they will be more likely to support further innovations. Ultimately, the goal is to leverage technology to enhance consumer experiences while fostering trust and transparency. We can create a scalable carbon market that resonates with users and drives meaningful environmental impact by aligning with familiar concepts and gradually introducing new features.

8.4 Implications for Carbon Markets

As I reflect on the evolution of carbon markets, I find myself drawn to the gradual transition we've witnessed in other sectors, particularly in banking. Initially, traditional banking was built on a foundation of trust—customers felt secure in their relationships with local branches and bank tellers. In stark contrast, our current carbon markets grapple with a trust deficit that undermines their effectiveness.

Both systems share fundamental characteristics: they rely on transactions, they aim to create value, and they strive for transparency. However, the traditional carbon market has faltered in its ability to inspire confidence. The algorithms and data used for carbon credit verification remain largely opaque to the average stakeholder, creating an environment ripe for skepticism. Just as a consumer might question the authenticity of a product labeled "organic" in a supermarket, participants in carbon markets often doubt the legitimacy of credits generated through centralized platforms.

This is where I see the crux of the problem. The trust that once characterized traditional banking is absent in the carbon market. While online banking successfully transitioned users from physical branches to digital platforms, the same approach in carbon markets faces a daunting challenge. The stakes are higher here; if stakeholders do not believe in the integrity of carbon credits, the very foundation of these markets is compromised.

To facilitate a meaningful transition, we must first identify the critical areas that require change. Transparency is paramount. Carbon markets must adopt practices that demystify the processes behind credit verification. By making data accessible and understandable, we can begin to rebuild trust. This effort mirrors the early days of online banking, where banks took steps to educate users about security measures and the benefits of digital transactions.

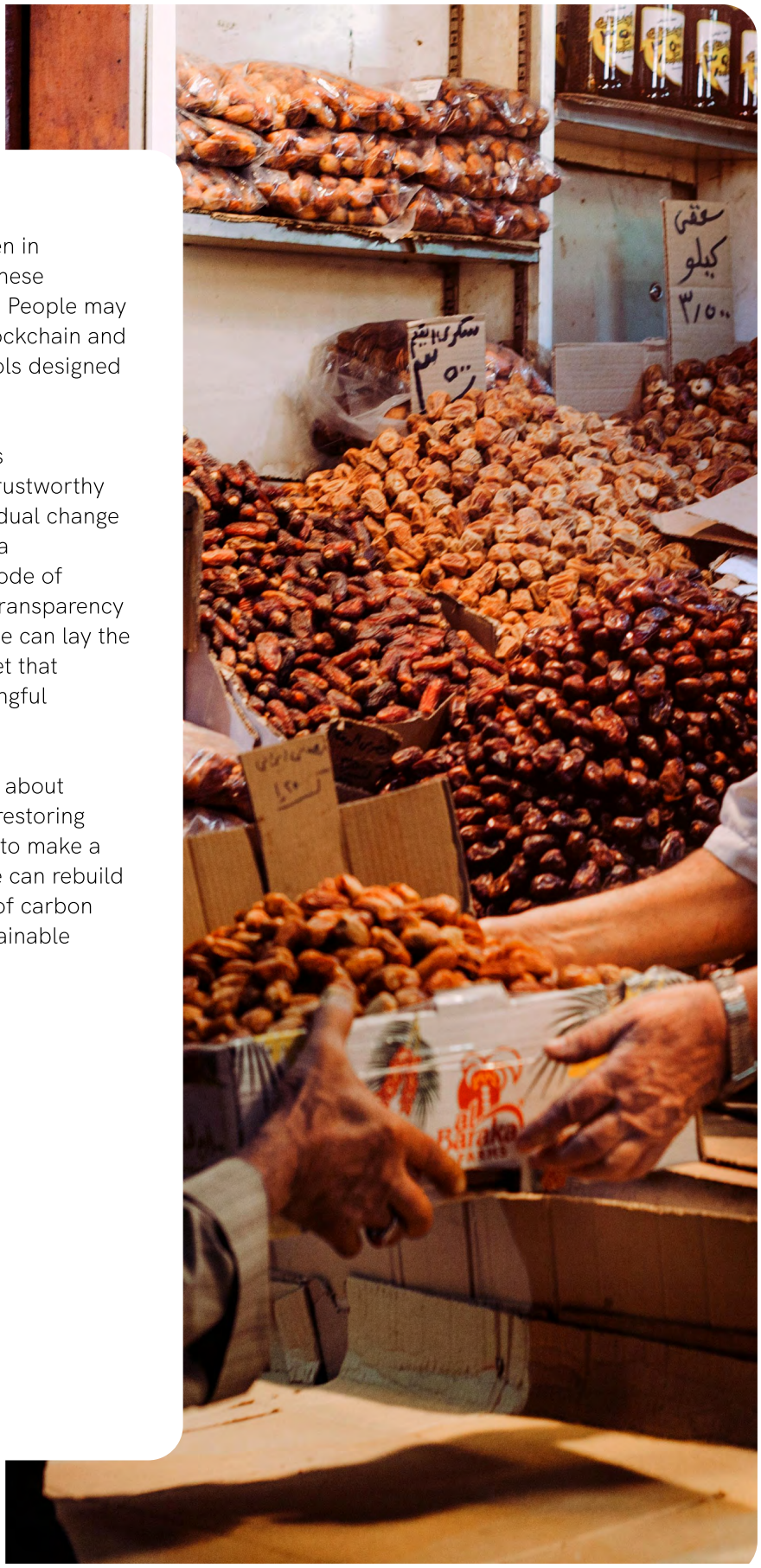
Next, we must address the perception that profit overshadows genuine environmental impact. Just as consumers once worried that online banking favored corporate interests over customer relationships, stakeholders in carbon markets need assurance that the credits they invest in contribute authentically to sustainability efforts. Emphasizing community engagement and local projects can help bridge this gap, creating a sense of connection that is often missing in centralized systems.

Yet, I acknowledge that while the transition to newer technologies in carbon markets is an intriguing prospect, it may pose an even greater

challenge than the transformations seen in banking. The skepticism surrounding these technologies could hinder acceptance. People may view cutting-edge technologies like blockchain and AI as abstract concepts rather than tools designed to enhance trust and transparency.

I believe we must tread carefully in this philosophical journey toward a more trustworthy carbon market. We must embrace gradual change —just as online banking evolved from a supplementary service to a primary mode of financial management. By prioritizing transparency and fostering a sense of community, we can lay the groundwork for a robust carbon market that resonates with users and drives meaningful environmental impact.

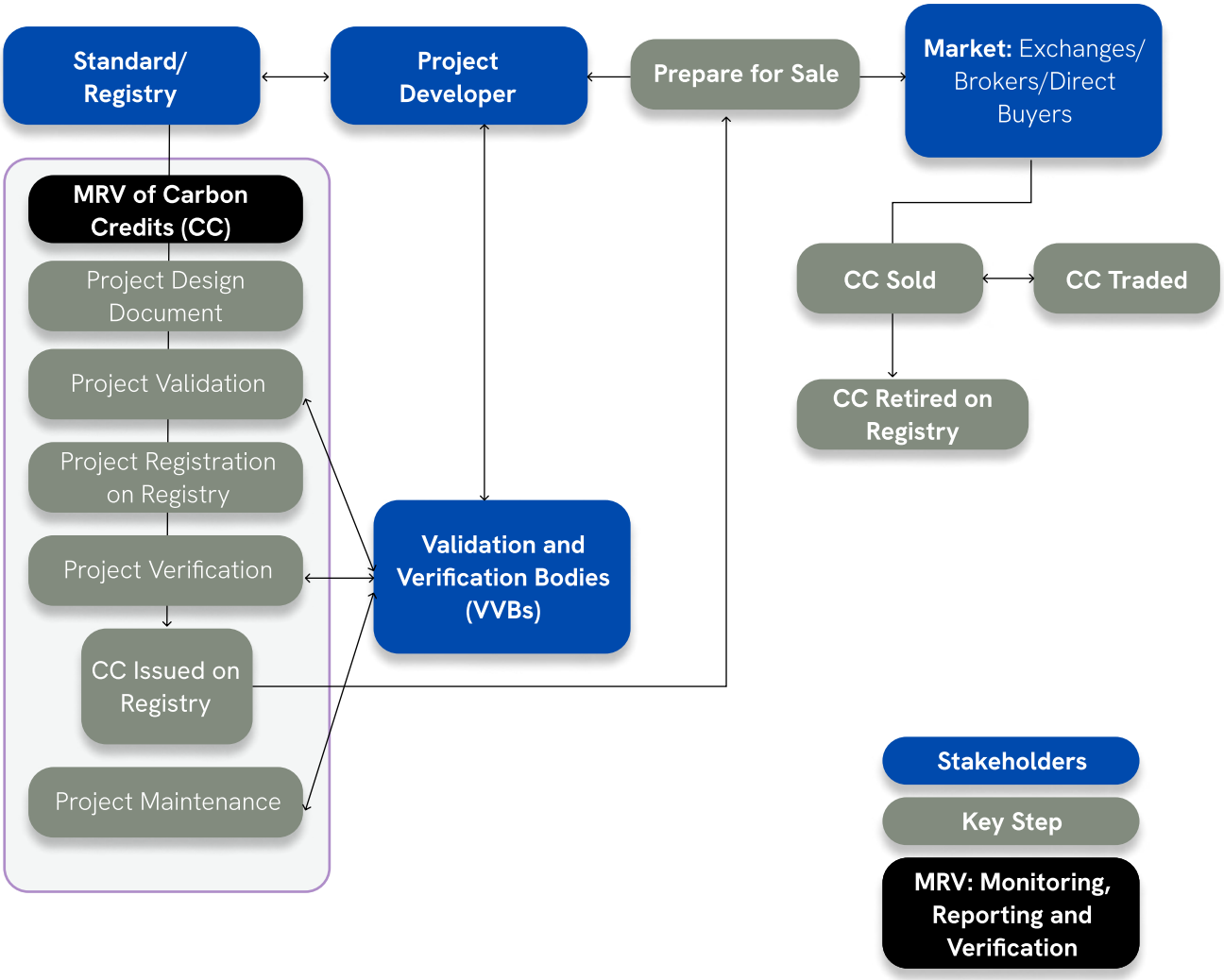
Ultimately, the path forward is not just about adopting new technologies; it's about restoring faith in a system that has the potential to make a profound difference in our world. If we can rebuild trust, we can unlock the full potential of carbon markets and contribute to a more sustainable future.





9. Understanding the Carbon Supply Chain

As we delve into the intricacies of the carbon market, it's essential to understand how carbon credits are generated. This process is not just a bureaucratic exercise; it is a carefully orchestrated supply chain designed to ensure that every credit represents a genuine reduction or removal in carbon emissions.



9.1 Validation of Project Design Document

To claim carbon credits, a project developer must first establish the design of their project and choose an appropriate methodology. Projects may range from reforestation and renewable energy generation to energy efficiency improvements. Once the project is conceptualized, it must be validated by an authorized third party, known as a Validation and Verification Body (VVB), before being submitted to a standards registry.

9.2 Project Registration

By registering a project, developers commit to adhering to specific standards and methodologies that ensure the credibility of their emissions reductions or removals. Registries serve as official databases that track carbon projects and their credits, providing a platform where stakeholders can access information about each project's goals, methodologies, and projected impacts.

9.3 Verification Process

After registration, the next step is verification. This is a critical stage where independent third-party auditors assess the project to ensure it meets established standards. These auditors confirm that the project is removing or reducing the amount of carbon it claims.

Verification involves several key activities:

- **Baseline Assessment:** Auditors determine the baseline emissions level, which represents the amount of carbon that would have been emitted without the project. This baseline is crucial for calculating the actual reductions or removals achieved.
- **Monitoring:** Throughout the project's duration, continuous monitoring is essential to track its performance and emissions reductions or removals. This data is collected through various means, such as on-site inspections and remote sensing technologies.
- **Reporting:** After the monitoring period, the project developer compiles a report detailing the emissions sequestered or reduced. This report is submitted to the verification body, which evaluates its accuracy and compliance with the registry's standards.

Once the verification is complete, and the emissions reduced or removed are confirmed, carbon credits are issued. Each credit typically represents one metric ton of CO_2 equivalent reduced or sequestered.

9.4 Issuance of Carbon Credits

With verified reductions or removals, the registry issues carbon credits, which are now tradable assets in the carbon market. These credits can be bought and sold by companies, governments, and individuals seeking to offset their emissions.

The issuance process is designed to ensure that credits are unique and cannot be double counted. Each credit is assigned a unique identifier, making it easy to track ownership and transactions. This traceability is vital for maintaining the integrity of the carbon market.

The generation of carbon credits is a systematic process that includes project registration, verification, and issuance. Each step is essential to ensure that the credits represent real, measurable, and additional removals or reductions. By understanding this supply chain, we can appreciate the complexities involved in creating a trustworthy carbon market, which ultimately contributes to our collective efforts in combating climate change.

9.5 Maintenance, Sale and Retirement of Carbon Credits

If further carbon credits can be issued from the same project, continued maintenance of validation and verification from the VVB is required. Once issued, carbon credits are free to be sold and traded. Importantly, once a company claims to have offset an amount of carbon using the credits, the carbon credit is retired and can no longer

be traded or claimed by another company. This ensures that the benefits of carbon offsetting are not double-counted and maintains the integrity of the carbon market.

10. Understanding the Carbon Supply Chain

As I reflect on the carbon credit generation process, I can't help but question its integrity. While the framework of project registration, verification, and issuance seems sound on the surface, there are inherent vulnerabilities that contribute to a significant lack of trust in carbon credits.

10.1 Subjectivity in the Process

One of the primary reasons for this trust deficit lies in the subjectivity present at various stages of the process. For instance, during the project registry phase, the methodologies adopted for calculating emissions reductions can vary from one project to another. This variability introduces a level of subjectivity that can skew results. What one project developer considers a valid approach might not align with another's, leading to inconsistencies in the credits issued.

Moreover, the verification process, while designed to be rigorous, is still subject to human interpretation. Independent auditors assess projects based on established standards, but these standards can sometimes be ambiguous or open to interpretation. This inconsistency can create opportunities for discrepancies, where projects might receive credits that don't accurately reflect their emissions reductions.

10.2 The Organic Food Analogy

This situation reminds me of the organic food market. In supermarkets, we often encounter products labeled as "organic," leading us to believe they meet strict agricultural standards. However, studies have shown that the quantity of organic food available far exceeds what is produced under certified conditions. This discrepancy arises from various factors, including misleading labeling and the lack of rigorous enforcement.

Just as consumers have learned to question the authenticity of organic claims, stakeholders in carbon markets are becoming increasingly skeptical of the credits being sold. The same dynamic applies: if the processes behind carbon credit generation are perceived as flawed or subjective, people will hesitate to invest their trust —and their money—in these credits.

10.3 Trust Deficit Points in the Carbon Supply Chain

Delving deeper into the trust deficit within the carbon supply chain, we can identify several critical points where trust is particularly fragile. Each point represents an opportunity for error, misrepresentation, or misunderstanding, ultimately undermining the credibility of carbon credits.

10.3.1 Project Registry

The project registry is the first line of defense in validating carbon reduction or removal initiatives. However, the criteria for registration can vary widely between different registries. Some may have stringent requirements while others may allow projects to register with minimal scrutiny. This inconsistency can lead to:

- **Quality Variability:** Projects that do not genuinely contribute to emissions reductions or removals can slip through, resulting in credits that lack real environmental impact.
- **Lack of Accountability:** If project developers are not held to rigorous standards, there may be little motivation to ensure that their projects are effective.

10.3.2 Baseline Assessments

Determining a project's baseline emissions level is crucial for measuring its impact. However, this process is fraught with subjectivity:

- **Methodological Differences:** Different methodologies can yield drastically different baseline estimates. A project's emissions reductions or removals might appear significant when compared to a high baseline, but the true impact may be much less.
- **Potential for Manipulation:** Developers may choose methodologies that favor their projects, leading to inflated claims about emissions reductions or removals.

10.3.3 Verification Procedures
Verification is intended to provide an independent assessment of a project's outcomes, yet it is not foolproof:

- **Auditor Bias:** The independence of auditors is vital, but not all third-party verifiers operate with the same level of integrity. There is the potential for conflicts of interest, especially if auditors are compensated by project developers.
- **Inconsistency in Standards:** Different verification bodies may apply varying standards, leading to credits being issued for projects that would be rejected by stricter criteria.

10.3.4 Monitoring and Reporting
Ongoing monitoring is essential for maintaining the integrity of carbon credits, but it is often reliant on self-reported data from project developers:

- **Self-Reporting Risks:** Developers might underreport negative impacts or overstate benefits to secure more credits. This lack of external oversight can lead to significant discrepancies between reported and actual emissions reductions or removals.
- **Data Accessibility:** If monitoring data is not publicly accessible, stakeholders cannot verify claims independently, further eroding trust.

10.3.5 Credit Issuance
The final step in the carbon credit process is the issuance of credits, which can be problematic if not managed with transparency:

- **Double Counting Concerns:** Without robust tracking systems, there is a risk of the same emissions reductions or removals being claimed by multiple parties, undermining the market's integrity.
- **Lack of Transparency:** If stakeholders cannot easily trace the origins of credits, they may be hesitant to engage in trading, fearing that they are purchasing credits that lack authenticity.

10.3.6 Market Oversight and Regulation
Finally, the overall governance of carbon markets plays a critical role in shaping trust:

- **Inconsistent Regulations:** Varying regulations across jurisdictions can create a patchwork of standards, leading to confusion and distrust among participants.
- **Limited Enforcement:** If regulatory bodies lack the resources to monitor compliance effectively, the potential for abuse increases, further diminishing confidence in the market.

In examining these trust deficit points, it becomes clear that rebuilding confidence in carbon markets requires a multistage approach. Each segment of the supply chain holds the potential for improvement, and addressing these vulnerabilities through greater transparency, consistency, and accountability is essential. Only by confronting these challenges can we hope to establish a carbon market that truly reflects our commitment to sustainability and environmental integrity.

10.4 Prioritizing Trust Deficits in the Carbon Supply Chain

To effectively address the trust deficits in the carbon supply chain, we can classify these issues based on their impact on overall trust and the ease of implementation of solutions. By focusing on the most critical areas where we can achieve substantial improvements with minimal effort, we can apply the 80-20 rule to create meaningful change.

10.4.1 High Impact, Medium Ease to Implement

- **Project Registry Quality**
  - **Impact:** High
  - **Ease of Implementation:** Medium
  - **Action:** Establish clearer, standardized criteria for project registration across registries. This would help ensure that only credible projects enter the market, significantly enhancing trust.

- **Monitoring and Reporting**
  - **Impact:** High
  - **Ease of Implementation:** Medium
  - **Action:** Implement mandatory third-party audits for self-reported data. Regular audits can increase transparency and deter misreporting, bolstering confidence in the data provided.

10.4.2 High Impact, Difficult to Implement

- **Verification Procedures**
  - **Impact:** High
  - **Ease of Implementation:** Low
  - **Action:** Standardize verification processes and improve auditor training. While this would significantly enhance trust, it requires considerable resources and time to implement.

10.4.3 Medium Impact, Easy to Implement

- **Credit Issuance Transparency**
  - **Impact:** Medium
  - **Ease of Implementation:** High
  - **Action:** Develop clearer guidelines for credit issuance and create public databases to track credits. This transparency can alleviate concerns about double counting and enhance market integrity.

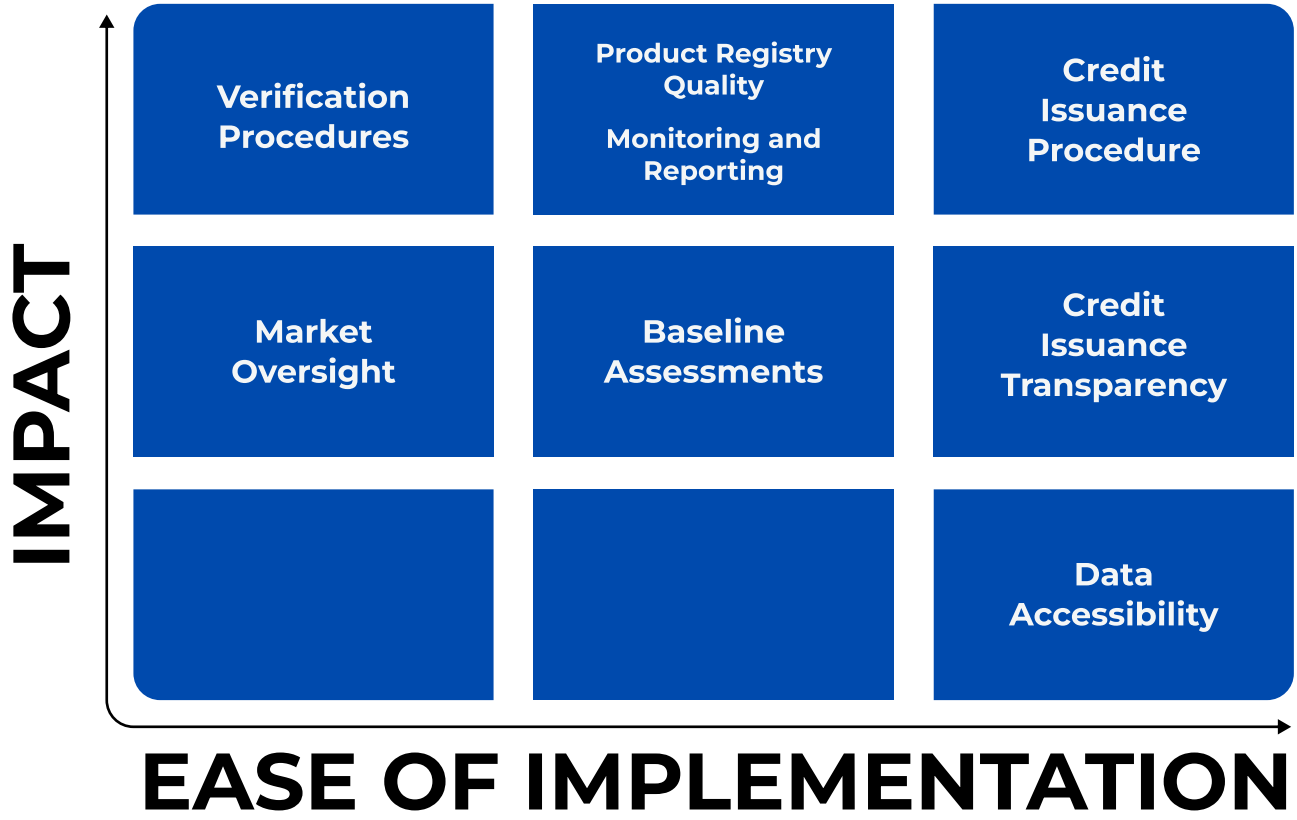
- **Baseline Assessments**
  - **Impact:** Medium
  - **Ease of Implementation:** Medium
  - **Action:** Standardize baseline assessment methodologies. While this requires collaboration among stakeholders, it can be achieved relatively easily and can lead to more consistent reporting.

10.4.4 Medium Impact, Difficult to Implement

- **Market Oversight and Regulation**
  - **Impact:** Medium
  - **Ease of Implementation:** Low
  - **Action:** Strengthen regulatory frameworks and enforcement mechanisms. While vital for long-term trust, this involves significant political and administrative challenges.

10.4.5 Low Impact, Easy to Implement

- **Data Accessibility**
  - **Impact:** Low
  - **Ease of Implementation:** High
  - bImprove access to monitoring data. Making information publicly available can enhance stakeholder confidence, though it may not address deeper issues.v


Verification Procedures
Product Registry Quality
Monitoring and Reporting
Credit Issuance Procedure
Market Oversight
Baseline Assessments
Credit Issuance Transparency
Data Accessibility
IMPACT
EASE OF IMPLEMENTATION



11. Enter Blockchain

As we explore the potential of blockchain technology, I find it essential to define what it truly is. At its core, blockchain is a decentralized digital ledger that records transactions across many computers. This structure ensures that no single entity has control over the entire chain, making it transparent and immutable. Each transaction, or block, is securely linked to the previous one, forming a chain that is nearly impossible to alter without consensus from the network.

The benefits of implementing blockchain solutions in the carbon market are multi-dimensional. First, **transparency** is significantly enhanced. All transactions are recorded in real time and can be accessed by any stakeholder, which could help reduce the opacity that often surrounds carbon credits. Second, **traceability** allows for the clear tracking of carbon credits from their origin to their final buyer, minimizing the risk of double counting. Third, security is improved, as the decentralized nature of blockchain makes it resistant to tampering and fraud. Finally, **efficiency** can be achieved through automated smart contracts that streamline transactions and reduce administrative burdens.

However, as I contemplate these advantages, I am drawn back to the central issue of trust. The carbon market's credibility hinges on the assurance that every credit represents genuine emissions reductions or removals. Blockchain promises to elevate this trust construct by providing a transparent, immutable record of transactions. Yet, despite the potential, I see a troubling trend: many blockchain solutions in the carbon industry have primarily focused on tokenizing carbon credits to prevent double counting. While this approach addresses a valid concern, it is ultimately a medium-impact solution to a problem that is relatively easy to solve.

The real challenge in integrating blockchain into the carbon market extends far beyond the simple act of tokenization. At the heart of the issue lies the complex landscape of validation, verification, and stakeholder engagement. These aspects are critical for ensuring that carbon credits are not just numbers on a ledger but represent genuine, verifiable emissions reductions.

This situation reminds me of the implementation challenges we faced during the Web 2.0 era. Many solutions at that time were designed to address superficial needs—such as creating user-friendly interfaces or flashy features—while overlooking the deeper systemic issues that required attention. As we transition to Web 3.0, I notice a similar pattern emerging. There is a palpable rush to adopt blockchain technology, often without a thorough understanding of its implications and limitations. Simply proclaiming "decentralization" does not automatically resolve the trust issues that have historically plagued the carbon market. This is a misconception that can lead to misguided implementations.

To truly harness the power of blockchain, we must first confront the intricacies of validation and verification. These processes are not just technical challenges; they involve human judgment, ethical considerations, and the establishment of standards that are universally accepted. Without robust mechanisms for validating the authenticity of carbon credits, the entire system remains vulnerable to manipulation and skepticism, undermining the very trust blockchain aims to build.

Stakeholder engagement is another critical dimension. The carbon market comprises a diverse

array of participants—governments, corporations, NGOs, and local communities—each with its own interests and levels of understanding regarding blockchain technology. Bridging the knowledge gap and fostering dialogue among these stakeholders is essential. If we want to create a system that everyone trusts, we must ensure that all voices are heard and that stakeholders are educated about the benefits and limitations of blockchain.

So, how do we navigate this dilemma? A balanced approach is vital. I believe that blockchain solutions should actively seek partnerships with existing centralized systems, such as carbon registries. This collaboration can serve as a bridge between innovative technology and established practices. By integrating blockchain as a supplementary tool—much like how online banking enhances traditional banking—we can create a hybrid model that leverages the strengths of both centralized and decentralized systems. This approach can foster trust and familiarity among stakeholders who may be hesitant to embrace a fully decentralized framework.

Moreover, we must address the fundamental questions surrounding effective implementation in the carbon market. How do we educate stakeholders to appreciate the true value of blockchain beyond just the buzzwords? This requires a concerted effort to demystify the technology, offering clear examples of how it can enhance transparency and accountability. Training sessions, workshops, and accessible educational materials can play a crucial role in this endeavor.

Additionally, we must ensure that our blockchain solutions are genuinely transformative rather than merely cosmetic. This means setting clear objectives and metrics for success and being willing to iterate and adapt as we learn from real-world applications. Engagement with pilot projects can provide valuable insights into what works and what doesn't, allowing for refinements that enhance effectiveness.

By approaching these challenges with a pragmatic mindset and a spirit of collaboration, we can unlock the full potential of blockchain to create a more trustworthy and efficient carbon market. In doing so, we may finally address the core issues that have long hindered progress in this vital industry, paving the way for a more sustainable future.

12. The Power of Customization in Blockchain Implementation

As we contemplate the integration of blockchain technology into the carbon market, one fundamental principle stands out: the power of customization over generic, boilerplate solutions. Each project within the carbon ecosystem presents its own unique challenges and requirements, making a one-size-fits-all approach inadequate.

Consider the varying complexities of different projects. A simple solar panel installation aimed at replacing conventional electricity sources involves relatively straightforward dynamics. The stakeholders are typically fewer, and the validation process can be more streamlined. In contrast, a wind energy project introduces additional layers of complexity, including land use, environmental impact assessments, and a broader array of stakeholders. The intricacies multiply further with biogas projects, which require extensive stakeholder engagement, regulatory compliance, and ongoing management of biological processes.

Then, we arrive at the most complex scenarios, such as biosequestration, which entails longitudinal analysis and sustained monitoring over years or even decades. Here, the demand for trust becomes paramount, as stakeholders need assurance that the carbon captured is indeed sequestered and not released back into the atmosphere. This level of complexity necessitates a tailored approach to blockchain implementation, one that considers the specific needs and dynamics of each project.

However, this diversity of projects presents a challenge. Customization can be resource-intensive, and the varying requirements can lead to fragmentation in the market. So, how do we harness the power of economies of scale to streamline processes while maintaining the necessary customization?

The key lies in developing a modular framework for blockchain solutions. By creating standardized components that can be adapted to various projects, we can achieve a balance between customization and efficiency. For instance, a core blockchain protocol could serve as the foundation for tracking carbon credits, while additional modules could be developed for project-specific needs, such as stakeholder engagement tools or reporting frameworks. This strategy allows us to leverage existing technologies while tailoring them to meet unique project demands.

Our go-to mantra in this endeavor should be "customize with purpose." This emphasizes the importance of understanding the specific context of each project while also recognizing the need for efficiency and scalability. By fostering collaboration among stakeholders—governments, private companies, NGOs, and local communities—we can co-create solutions that are not only tailored to individual projects but also contribute to a more cohesive carbon market.

We should prioritize education and knowledge sharing across the industry. We can provide a roadmap for future projects by documenting successful case studies and best practices and illustrating how tailored blockchain solutions can effectively address complex challenges. This collective learning will empower stakeholders to make informed decisions, fostering greater trust and collaboration.

As we navigate the roadmap ahead, we must embrace the power of customization in blockchain implementation. By recognizing the unique complexities of each project and developing modular solutions that cater to diverse needs, we can create a more effective and trustworthy carbon market. Balancing customization with economies of scale will not only enhance efficiency but also ensure that we build a robust system capable of addressing the pressing challenges of climate change. With "customize with purpose" as our guiding principle, we can pave the way for innovative solutions that foster trust and drive meaningful progress in the carbon space.

13. Phased Approach to Customize with Purpose

The **phased approach** is a strategic methodology designed to systematically address the trust deficits in the carbon market while ensuring alignment with the **triple-bottom-line** principles: people, planet, and profit. This approach emphasizes incremental progress, allowing stakeholders to build confidence and capacity as they tackle increasingly complex challenges.

13.1 Key Features of the Phased Approach

- **Iterative Implementation:** Each phase builds on the successes and lessons learned from the previous one, allowing for continuous improvement and adaptation.
- **Prioritization of Impact:** By focusing first on high-impact, low-difficulty solutions, we can generate quick wins that foster trust among stakeholders. This momentum paves the way for tackling more challenging issues.
- **Integration of Technology:** The approach incorporates advanced technologies—such as blockchain, IoT, and AI—at each stage to enhance transparency, efficiency, and reliability in processes.
- **Maturity Model Framework:** A maturity model helps assess the readiness of different regions or stakeholders, guiding tailored solutions based on local capacities and needs.

- **Collaboration and Engagement:** The phased approach encourages stakeholder collaboration throughout the process, ensuring all voices are heard and fostering a sense of ownership and commitment.

This structured methodology enables us to create a resilient and trustworthy carbon market, ultimately contributing to sustainable environmental practices and economic viability.

13.2 Phased Solutions Overview

13.2.1 Phase One: High-Impact, Low-Difficulty Solutions

- **Enhancing Project Registry Quality**
  - **Solution:**
    - **Blockchain: I**mplement a decentralized project registry on a blockchain (preferably a public blockchain). Each project's details—such as type, location, and expected emissions reductions or removals—are recorded immutably. This ensures that once data is entered, it cannot be altered, enhancing trust in the registry.
    - **IoT:** Deploy IoT sensors at project sites to collect real-time data on performance metrics (e.g., energy output and emissions). This data feeds directly into the blockchain registry, providing continuous updates and allowing for immediate validation of project claims.
    - **AI:** Utilize AI algorithms to automate the verification of project submissions against established criteria. Machine learning models can analyze historical data to flag anomalies or inconsistencies, ensuring only compliant projects are registered.
- **Improving Monitoring and Reporting**
  - **Solution:**
    - **Blockchain:** Use a blockchain-based platform for all monitoring data, ensuring that reports generated are traceable and verifiable. Stakeholders can access a transparent history of data changes, enhancing accountability.
    - **IoT:** Implement IoT devices to monitor emissions or energy production continuously. For example, smart meters can provide data on energy generation from renewable sources, which can be logged directly to the blockchain.
    - **AI:** Employ AI for predictive analytics, using historical data to identify patterns and potential discrepancies in reported values. This proactive approach helps stakeholders address issues before they escalate.

13.2.2 Phase Two: Medium-Impact, Low-Difficulty Solutions

- **Credit Issuance Transparency**
  - **Solution:**
    - **Blockchain:** Develop a public blockchain for carbon credit issuance, where every credit transaction is recorded transparently. This system can prevent double counting and fraud by ensuring that each credit is tied to a specific project and its verified outputs.
    - **IoT:** Integrate IoT technology to track real-time carbon offset data, such as the amount of CO2 sequestered by a forest or the energy generated by a solar farm. This data can be linked to the blockchain to support credit claims.
    - **AI:** Use AI to analyze historical credit data and project performance, ensuring that credits are issued based on accurate assessments. Machine learning models can identify trends and validate the amount of carbon offset produced.

- **Standardizing Baseline Assessments**
  - **Solution:**
    - **Blockchain:** Establish a blockchain registry for standardized methodologies that projects must adhere to when conducting baseline assessments. This registry would ensure that all stakeholders access the same information and methodologies.
    - **IoT:** Utilize IoT sensors to gather data for baseline assessments, such as pre-project emissions levels. This ensures that the data collected is accurate and reflects the conditions before project implementation.
    - **AI:** Implement AI analytics to assess baseline data against established standards. AI can help refine methodologies over time by identifying which approaches yield the most reliable results.

13.2.3 Phase Three: High-Impact, Medium-Difficulty Solutions

- **Implementing Robust Verification Procedures**
  - **Solution:**
    - **Blockchain:** Create a real-time logging system on the blockchain for auditors to record their findings and actions. This system ensures that verification processes are transparent and easily accessible to all stakeholders.
    - **IoT:** Use IoT devices to provide ongoing verification of project performance. For example, sensors can measure outputs such as energy generation, and this data can be automatically logged to the blockchain for audit purposes.
    - **AI:** Leverage AI to analyze audit results and flag anomalies. AI can compare the verified data against expected performance metrics, alerting auditors to potential issues requiring further investigation.
- **Strengthening Market Oversight and Regulation**
  - **Solution**:
    - **Blockchain:** Build a decentralized regulatory framework, allowing regulators to monitor compliance across all projects. Each transaction and project update can be logged, creating a comprehensive oversight mechanism.
    - **IoT:** Implement IoT devices to monitor emissions or energy production continuously. For example, smart meters can provide data on energy generation from renewable sources, which can be logged directly to the blockchain.
    - **AI:** Employ AI for predictive analytics, using historical data to identify patterns and potential discrepancies in reported values. This proactive approach helps stakeholders address issues before they escalate.

13.2.4 Phase Four : High-Impact, High-Difficulty Solutions

- **Developing Comprehensive Market Oversight**
  - **Solution:**
    - **Blockchain:** Build an extensive blockchain network that connects all stakeholders, including project developers, auditors, regulators, and investors. This network promotes transparency and collaboration, allowing for seamless data sharing.
    - **IoT:** Deploy a wide array of IoT devices to gather data from multiple sources, ensuring comprehensive oversight. This could include environmental sensors, energy meters, and weather stations that provide valuable context for project performance.
    - **AI:** Use AI for advanced analytics to detect fraudulent activities or inconsistencies in the market. Machine learning algorithms can analyze large datasets to identify irregular patterns that may indicate malpractice.

- **Longitudinal Analysis for Complex Projects**
  - **Solution:**
  - **Blockchain:** Implement a blockchain system that tracks long-term data for complex projects, ensuring that records are immutable and accessible over time. This system can log changes in project performance, environmental impact, and carbon sequestration.
  - **IoT:** Utilize IoT sensors to monitor project parameters continuously over time. This data collection allows for real-time insights into project health and effectiveness.
  - **AI:** Employ AI to analyze longitudinal data, providing insights into project effectiveness and trends. AI can help identify factors influencing success or failure, allowing for adaptive management strategies.

14. The Road Ahead

I want to emphasize the pragmatic nature of this phased approach deeply. We are adopting a bottom-up strategy that integrates blockchain, IoT, and AI to enhance individual projects. This mirrors how a small business refines its operations to build customer trust—streamlining processes, improving transparency, and ultimately driving profitability.

However, it's crucial to understand that this approach does not operate in a vacuum. While microeconomic models guide our immediate actions and local implementations, the broader macroeconomic landscape will ultimately dictate how effectively these solutions can be scaled and sustained. Just as national policies and global market trends affect the viability of small businesses, regulatory frameworks, and economic conditions will shape the adoption of our innovations in the carbon market.

Moreover, informing policy is critical in this equation. Effective policies can provide the necessary incentives and frameworks that facilitate the integration of these technologies. If we have clear carbon credit verification regulations and issuance, stakeholders' trust will be enhanced, and more projects will be encouraged to participate in the market. Without supportive policies, the trust deficit in the carbon market cannot be adequately addressed.

By recognizing this interplay between micro- and macroeconomics, we can navigate the complexities of the transition process more effectively. Our goal is to create a solid foundation at the grassroots level while remaining adaptable to the larger economic and regulatory landscape. This dual focus on local action and informed policy will not only yield immediate benefits but also contribute to a sustainable, long-term transformation in the carbon market, ultimately fostering the trust necessary for its success.



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