

Tech for Transparency™ Initiative

In Pursuit of the Hidden Economy

Center of Excellence on Human-centered Global Economy
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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 wellbeing 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.

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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 today¹. 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:](#)



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.

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 statute 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 Transparency™ 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.

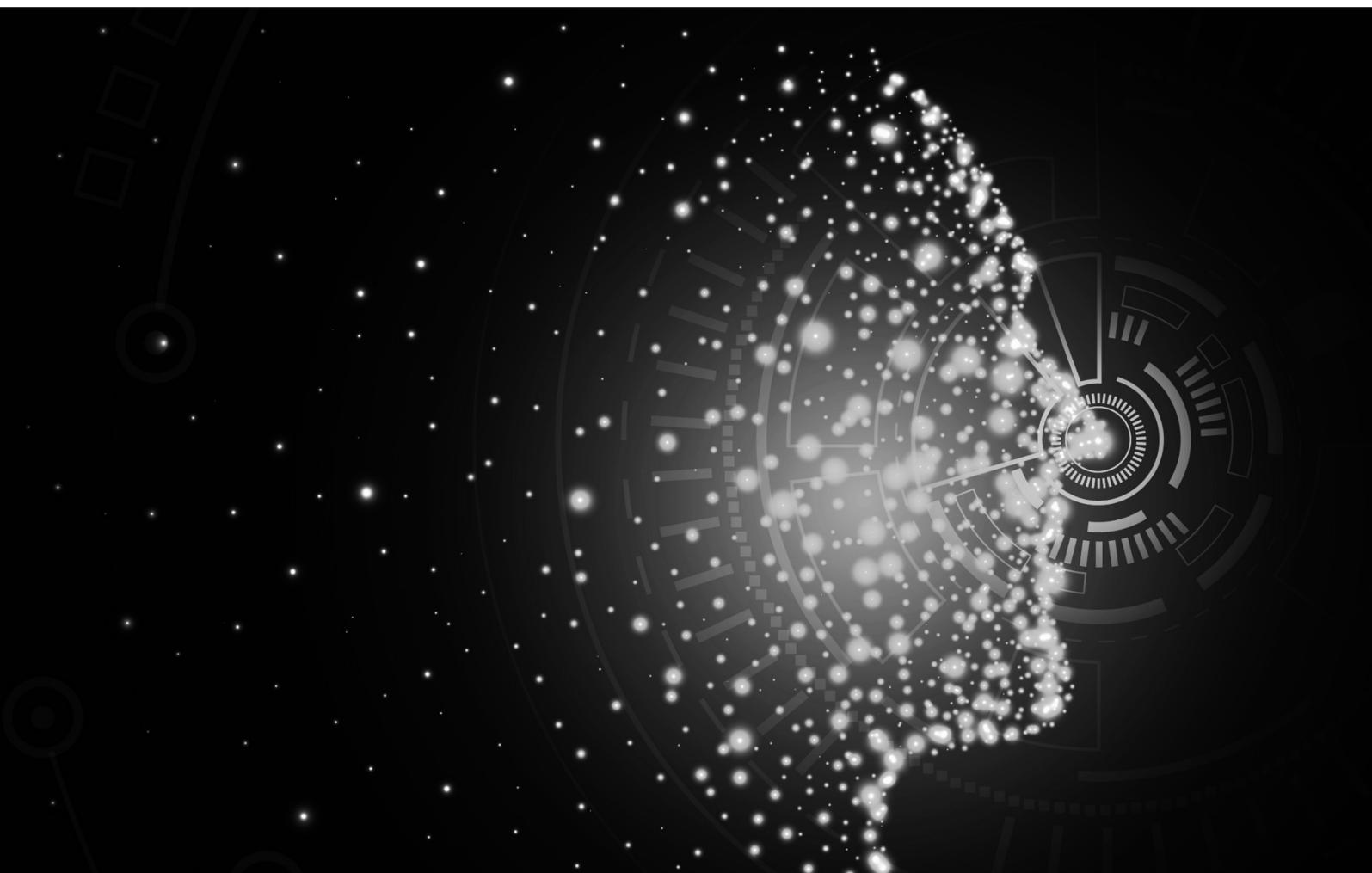
The Transformative Power of Digital Science

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 Transparency™ 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.

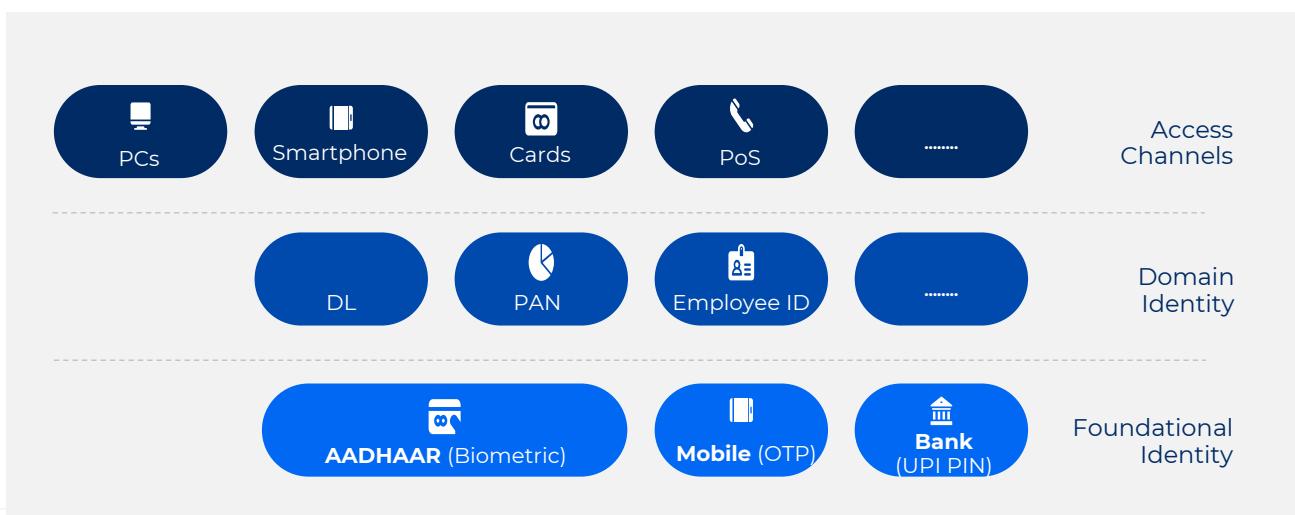
As one of the additions to this stack of services, the central bank Reserve Bank of India (RBI) launched a pilot program starting on November 1, 2022, to release a central bank digital currency (CBDC), also called “digital rupee.” The digital rupee is meant to serve two segments, beginning with the wholesale 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 Transparency™ 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 behind⁸.

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.

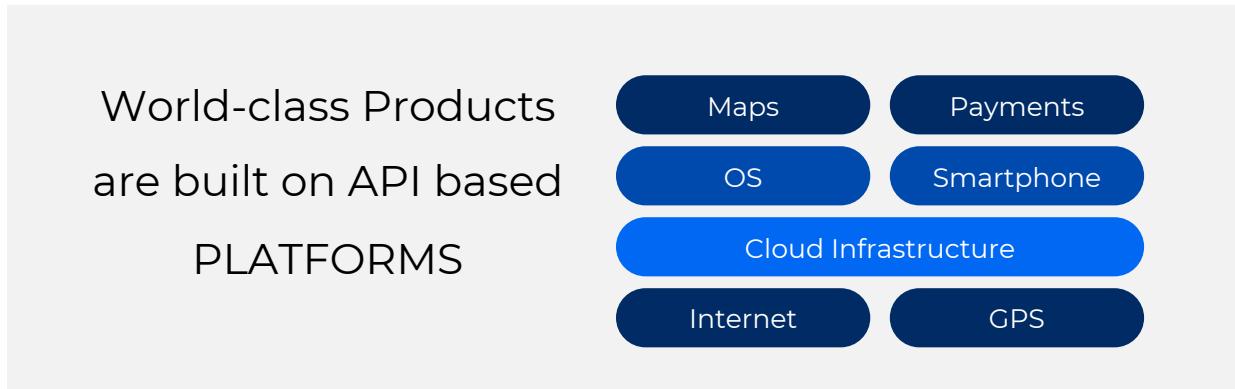
It is important to emphasize that although the India Stack is initiated by the government, it is not controlled by the government. The government may be the enabler, but it is not an intrusive arbiter.

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 Transparency™ 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 endpoint 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**⁹ 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 [Databshare](#).

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 Transparency™ 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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End Notes

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5. 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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7. The full court text can be found here:
<https://curia.europa.eu/juris/document/document.jsf?text=&docid=268842&pageIndex=0&doclang=FR&mode=req&dir=&occ=first&part=1&cid=1507747>
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