

BLOCKCHAIN FOR TAXATION #1

Blockchain technology enables transparency and trust between governments and citizens, including truthful reporting of tax data



With limited visibility on tax payments, countries fail to collect revenue owed to them and lose over \$427B in taxes per year

Revenue Diversion & Tax Evasion

> Through Legal & Illegal Means

From Multinational **Corporations & Private** Wealth

Lower income countries

Higher income

Higher income countries lose more money, but lower income countries suffer disproportionate financial effects*

Effects on public services can be significant

Total revenue loss per year	Average tax revenue loss as % of total tax revenue	Average tax revenue loss as % of health expenditure
\$45B	5.8%	52.4%
\$382B	2.5%	8.4%

*Aligned with January 2021 World Bank income classifications

SOLUTION

Traceable revenue improves accountability, bringing a holistic view of taxpayer obligations and corresponding payments



Certainty for taxpayer and administrator that taxable event occurred, authentication of actors and data to assess tax implications



Clear and simple processes to monitor and administer compliance with tax obligations



Data immutability and transparency to empower the tax function and support better policy design



Reduced data silos to align tax requirements with other government services (e.g., trade, social services, justice, welfare distribution)

Tax Authorities Can...

- Join decentralized trust networks
- Oversee real-time tax collections
- Make decisions on tax events as they occur
- Increase trust from citizens with accountability



TAX AUTHORITIES EXPLORING BLOCKCHAIN

Blockchain ensures data is not manipulated to benefit tax processes, law, and policy

Balancing privacy and transparency improves data sharing across jurisdictions and functions



Federal Administration of Public Revenue of



Federal Tax



Federal Tax Revenue of Brazil



Finnish Tax Administration



Internal Revenue Service of Chile



Nigerian Federal Inland Revenue Service & State Board of Internal Revenue



Estonian Tax and



Norwegian Tax Administration



Swedish Tax



Dutch Tax & Administration





State Taxation Administration

Panama General Revenue



Kenya Revenue Department of Àuthoritv

**Infrastructure also adopted for customs by countries in the Mercosur free trade agreement (Argentina, Brazil, Paraguay, Uruguay)



1 https://taxjustice.net/reports/the-state-of-tax-justice-2020/ 2 GBBC GSMI 2.0 Report (November 2021)



http://www.ciat.org/blockchain-in-tax-administrations/?lang=en http://news.bloombergtax.com/daily-tax-report-international/how-global-tax-administrations-are-using-blockchain-technology

Global Blockchain Business Council 2022

4 https://kraemerlaw.com/en/articles/crypto-and-fintech-regulations-are-soon-to-be-in-panama/ 5 https://www2.deloitte.com/content/dam/Deloitte/ke/Documents/tax/KE Article Tax Administration Going Digital.pdf



BLOCKCHAIN FOR TAXATION #2



Jurisdictions can benefit from increased tax collections and reliability

- Revenue to develop economies, supporting functional and inclusive societies
- >>>> Blockchain to improve efficiencies
- >>>>> Transparency and accountability to foster
 - Better rules, policy & decision making
 - > Trust in government





- 1. Enables increased transparency
- 2. **Issued** by a government authority
- 3. **Represents** an external entity (e.g., individual, organization, asset)

COMPONENTS OF A BLOCKCHAIN-BASED TAX SYSTEM

- Confidential data not stored in central repositories or recorded directly on the blockchain
- Cryptography & zero-knowledge proofs (ZKPs) to prove a value without conveying sensitive data
- Compatibility between new & existing systems
- Accurate tax data & security measures across organizations

- Partnerships across governments (national, sub-national, municipal) & businesses
- Consistent data ingestion & processes

Training to utilize new system

Interoperability

Collaboration

Education of Taxpayers

Data Privacy

- Secure technology and audited code to prevent data breaches and other risks
- Consistent risk analytics & reporting, with KYC used in financial services
- Expert security analysis and responsive systems

Security & Risk Management

Ecosystem

Digital Currency

Quality Data

- Stakeholder participation in governance & design to enhance long term viability
- Governance & board frameworks to define roles & incentive mechanisms
- Shared principles as guidelines that reflect participants' aspirations
- Enables taxable events and a targeted approach to them
- Can be tokenized currency
- Data security, integrity, and availability, with adequate consensus protocols for validation
- Data sourced from existing intermediaries with KYC programs
- Legal responsibility & adherence to due diligence and information sharing standards



BLOCKCHAIN FOR TAXATION #3

PROPOSED MODELS OF SOLUTIONS

SYNERGIES WITH AI & BLOCKCHAIN



Artificial Intelligence

- Sophisticated data analytics optimize compliance & efficiency
- Natural Language **Processing** analyzes legal provisions & case law

validated. structured data sources for AI model building &





transnational regimes like value-added tax (VAT) & withholding taxes

TRADITIONAL SYSTEMS

DISTRIBUTED SYSTEMS

Centralized & fiat-based Bilateral & intermediated trust

Individuals, corporations, and states exchange identity, trust, data, and

relationships

value directly

• Non-fungible tokens (NFTs) establish data is unique, immutable, and owned by users

Blockchain Technology

deployment



with specified permissions

IMMUTABLE NOTARIZATION ON BLOCKCHAIN



TAXABLE EVENT

- Citizens own their identity keys & decide to share their verified data
- Both parties compute a cryptographic hash of taxable event documentation
- Parties retain their own data

HASH-ONLY BLOCKCHAIN

- Immutable record of cryptographic hash values, with record identifiers for transaction documentation
- Acts as automatic notary for digital legal notarization

GOVERNMENTS

- Tax authorities may request data records
- Can recompute cryptographic hash values for records, ensuring nobody modifies data

LEGAL AND REGULATORY CONSIDERATIONS

- New rules for new issues
- **Balancing automation** with human review & adjudication
- Addressing legal ambiguity (e.g., binary objective criteria to trigger legal presumptions)
- Cross-border coordination (e.g., smart contracts to attribute tax treatment to adequate jurisdiction)
- Compliance with GDPR & other data laws (e.g., ZKPs & advanced cryptography for privacy)
- Alignment with competition law for different DLT systems & validation mechanisms, preventing use of commercially sensitive data for illegal price setting & anti-competitive behavior
- Protecting taxpayer rights (e.g., dispute resolution, burden of proof, identity management & digital inclusiveness)



