

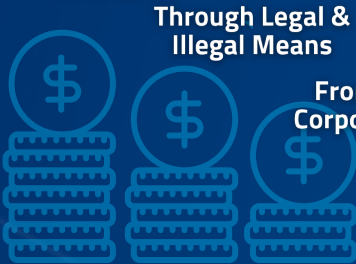
# BLOCKCHAIN FOR TAXATION #1

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

## PROBLEM

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

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
Lower income countries	\$45B	5.8%	52.4%
Higher income countries	\$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



\*\*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)  
3 <https://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>  
4 <https://kramerlaw.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](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**

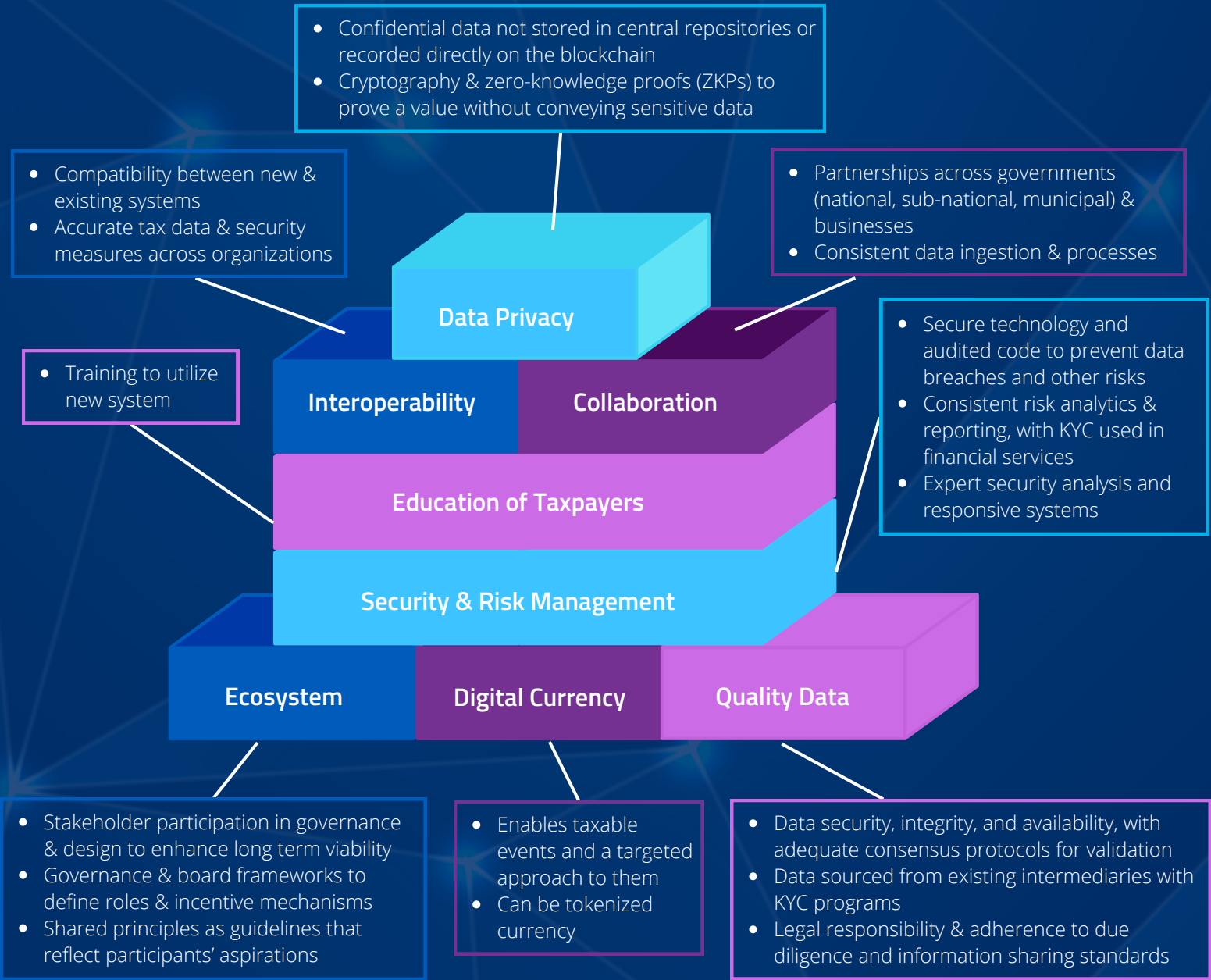


## Digital Identity is Key!



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

## COMPONENTS OF A BLOCKCHAIN-BASED TAX SYSTEM



# 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

- Information security
- System scalability
- Fraud reduction
- Governance



#### Blockchain Technology

- Transparent, validated, structured data sources for AI model building & deployment



- **Smart contracts** for legal, regulatory, and contractual restitutions on data usage & sharing
- **Zero-knowledge proofs (ZKPs)** for transnational regimes like value-added tax (VAT) & withholding taxes
- **Non-fungible tokens (NFTs)** establish data is unique, immutable, and owned by users with specified permissions



#### TRADITIONAL SYSTEMS

- Centralized & fiat-based
- Bilateral & intermediated trust relationships



#### DISTRIBUTED SYSTEMS

- Individuals, corporations, and states exchange identity, trust, data, and value directly

## 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)

