

# 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

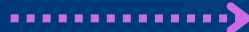
- Individuals, corporations, and states exchange identity, trust, data, and value directly

## 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)

