



# **40th ANNUAL TECHNICAL CONFERENCE 2019**

## **Tax Implications Of Digital Economy For Tax Administrations**

### **Digitalisation of Tax Administrations**

**Jeffrey Owens**



**Date of Presentation: Monday, 11-November-2019**

Global Tax Policy Center

Digital Economy Taxation Network

# Tax Implications of Digital Economy for Tax Administrations

Digitalization of Tax Administration  
40<sup>th</sup> CATA Annual Technical Conference 2019

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Session 3: Digitalisation – Opportunities for Tax Administration



Prepared by  
Jeffrey Owens and Sam Sim together with:  
Shimeng Lan, Marta Olowaska, Xue Peng, Cristobal Perez  
Jarpa, César Alejandro Ruiz, Mirna Solange Screpante, Pedro  
Schoueri

WU Institute for Austrian and International Tax Law



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# Taxing the digital economy: where are we now Tax Policy perspective



# Rough Estimates of how important Digital is to the Economy

- EU estimates that 25 percent of business is transacted digitally
- Productivity: 50 percent of productivity increases are due to investment into digital activities.
- McKinsey estimates that digital transactions account for around 4 percent of GDP in most countries and that digital growth is responsible for around 20 percent of GDP growth on average in most countries
- **Though estimates of tax revenue are low now, the growth rate of the sector implies that revenues will grow faster than the traditional tax base.**

# Current Technological Developments



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# The new wave of technologies: is the tax community ready ?

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- Managing data and communication:
  - AI
  - Blockchain
  - Data analytics
  - Robotics
- Changing production cycles and global value chains:
  - 3 D printing
  - Robots
  - IoT - internet of things
  - FinTech
  - Industry 4.0

# Technological Developments

- Concerns and objectives of the tax administration are largely independent of development in technology:

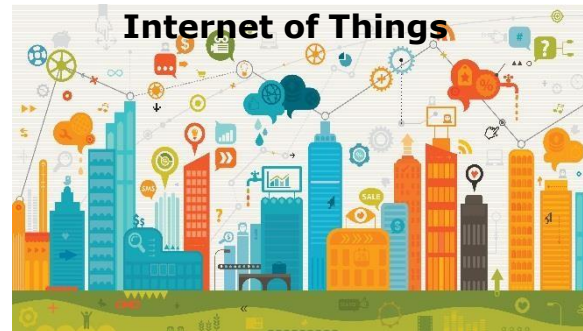
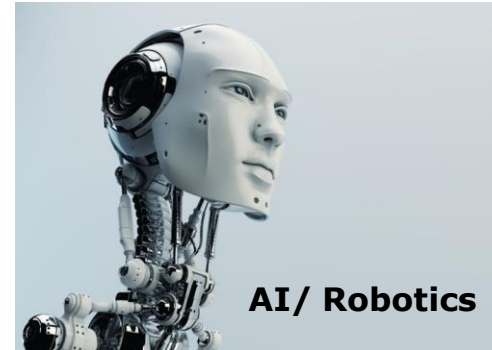
*Secure stable and sufficient budget revenue stream by relying on efficient allocation of available (mostly limited) resources*

- But technology enables:
  - near-real time reporting capabilities
  - process automation
  - development of infrastructure to handle increased data volumes
  - improvements to data sharing capabilities
  - security and data confidentiality
  - reduced costs

# Technological Developments

Technology allows to do more with less, by increasing efficiency of the available resources:

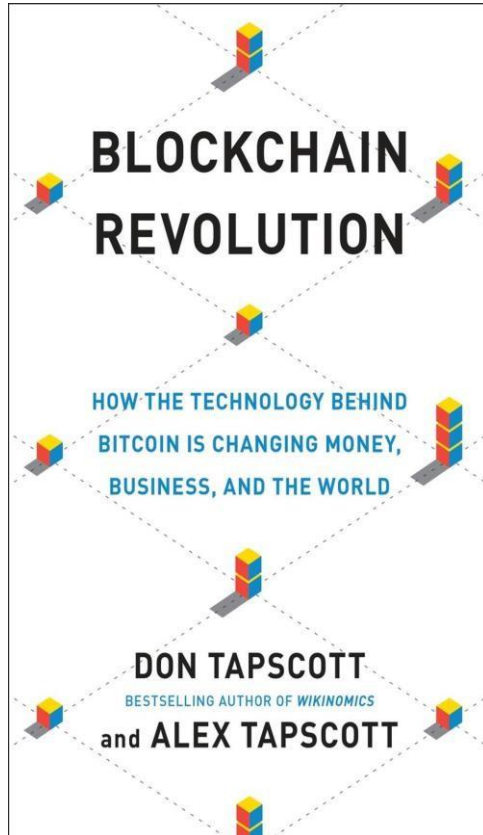
Collect, store and process data





# Blockchain: distributed ledgers and smart contracts





## Blockchain: The Trust Machine



If blockchains ran the world

### Disrupting the trust business

*The trust business is little noticed but huge. Startups deploying blockchain technology threaten to disrupt it, and much else besides*



# How does it work?

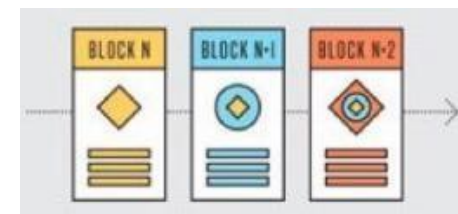
## Transaction



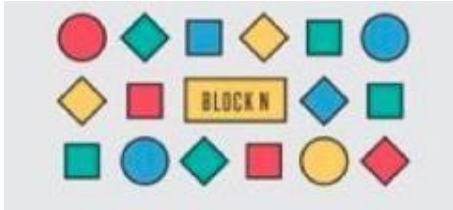
## Verification



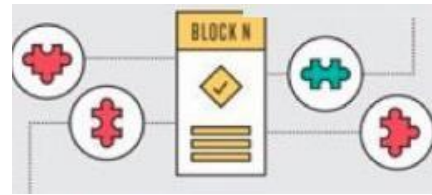
## Structure



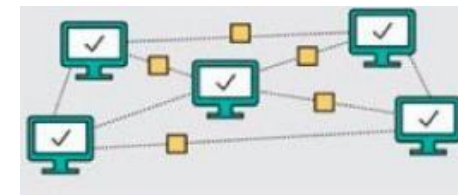
## Validation



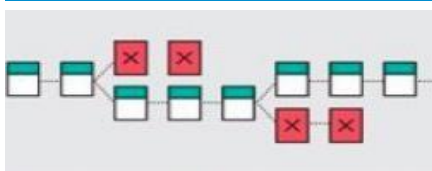
## Blockchain mining



## The chains

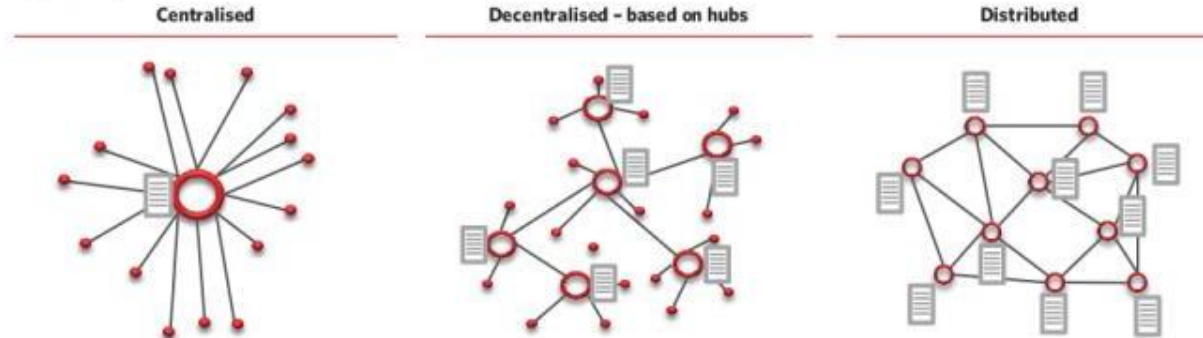


## Built-in defense



# What are the Distributed Ledgers

Distributed ledgers compared to centralised or decentralised ledgers



Source: Blockchain and financial services — Industry snapshot and possible future developments, Innovalue, 2015.

Shared

Public\*

Ledger of transactions

Transparent

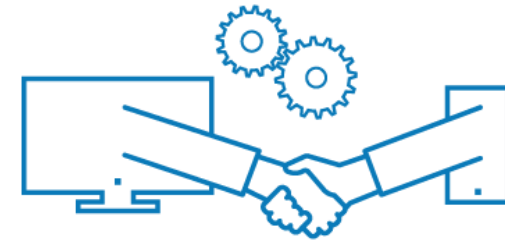
No single party control

- \* Blockchain can be configured as public/permissionless, private/permissioned or hybrid

# What are Smart Contracts?

- **Smart Contract**

- A misnomer
- Neither smart, nor contract in the legal sense
- Piece of self-executing code



- **Main benefits:**

- Direct peer-to-peer transactions between unrelated parties without the need for intermediaries to ensure trust;
- Embedding function of validation and compliance into code, allowing smart contract to execute itself;
- Radical reduction in the transaction costs and modifications to increase efficiency of processes.

# How can Blockchain serve tax administration and customs



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# Use for Tax Administration

Increased transparency  
Reliability of data  
Real-time reporting  
Embedding of compliance  
Automation of payments

Domestically: **Payroll**

EU-level: **VAT/ Carousel Fraud**

Internationally: **Transfer pricing**

All levels: **Tax avoidance and Evasion, inc. tackling opacity of tax havens through registers of Beneficial Owners**

# Use by Custom Authorities

- Tracking global supply chains
- Identity management
- Facilitation custom declaration and trade
- Sharing of information between custom authorities
- Compliance management
- Revenue collection
- Fraud detection
- Post clearance audit



# What threats does Blockchain pose to tax administration



# Threats to Tax Administration

- Lack of understanding and technological competence may increase the gap between the tax administration and public sector, as entirely new business models are being developed
- Lack of traceability, if no identification is secured that ties the digitalised asset, including crypto-currencies, to the taxpayer
- Opportunities for the growth of shadow economy
- Currently no reliable mechanism is developed to secure the integrity of data that is fed into the DLT
- Fully virtual existence
- Data privacy when using big data to analyze taxpayer information

# Benefits and costs the Blockchain/ DLT

Benefits	Costs
P2P communication and transacting in the trustless settings – no need for third party validation	Security and 'trust the machine'
Transparency	Privacy and identity
Immutability and permanence of records	Repudiation and 'right to be forgotten'
Distribution/ No single point of failure	Liability for failures from cyber-attacks and hacks

# Is blockchain the right solution?

- Underlying technology of Blockchain is certainly indicative of a potential to provide new opportunities and solutions, but it is not a **'silver bullet'**
- Certain factors indicate that problem could be solved with blockchain-backed application

Factors	Conditions present
Users	Need multiple, geographically-dispersed users
Trust	Lack of trust between the parties on the network
Information security	Transparency is a key issue, benefits of increasing transparency outweigh the loss of privacy; Access to data can be limited in private/ consortium blockchains



# Will these new technologies change the way we approach transfer pricing?

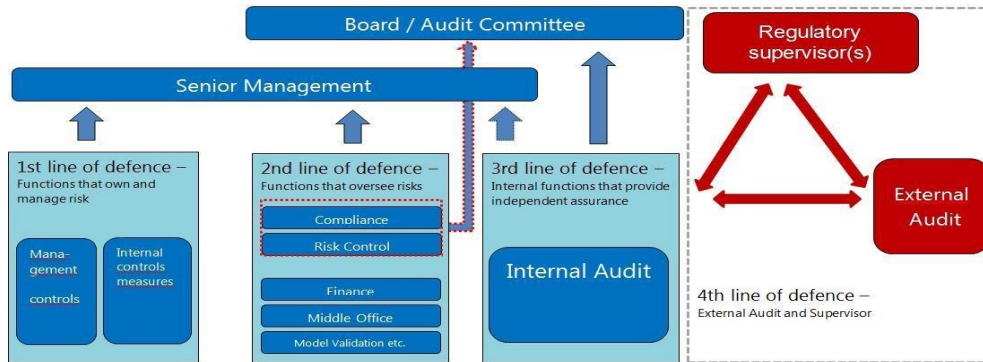
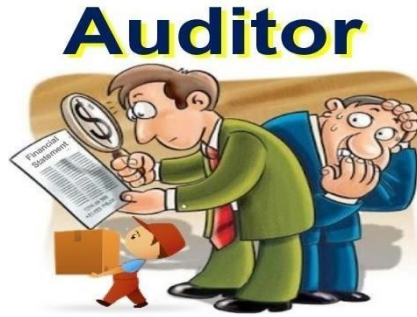


# Outline

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- Introduction
- Blockchain and Distributed Ledger Technology: can it overcome the trust issues in transfer pricing?
  - Transfer Pricing Documentation
  - Availability of comparable data for benchmarking
  - Functions, assets and risk analysis and the attribution of profits
  - Authenticating services rendered and costs recharged
  - More effective dispute resolution and cooperative compliance
  - Cash pooling arrangements

# Introduction



# Transfer Pricing Documentation

## Issues

- Information asymmetry between group entities within a MNC:
  - Poor understanding of the supply/value chain.
  - Poor documentation for billing/recharging, TP policy setting and TP documentation.
  - Non-compliance with statutory/regulatory/compliance requirements.
- Information asymmetry between MNCs and tax administrations.
- Information asymmetry between countries and tax administrations in different jurisdictions:
  - Exchange of information
  - Common Reporting Standard
  - Joint audits
- BEPS Action 13 requirements:
  - Master file, local file and CbC Reports has enhanced reporting requirements which may lead to detailed scrutiny of MNCs.

# Transfer Pricing Documentation

## Potential Application

Lets consider the IBM-Maersk Blockchain Solution for Cross-Border Supply Chain

[https://www.youtube.com/watch?v=IJFioQ-\\_hLk](https://www.youtube.com/watch?v=IJFioQ-_hLk)



# Transfer Pricing Documentation

## Potential Application (2)

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- A permissioned Blockchain/DLT:
  - Can provide greater transparency that may lead to a better understanding of transactions and the supply/value chain by participants within a MNC and possibly by the tax administration.
  - Which can enhance MNCs ability to evidence transactional flows and trace, analyse, articulate and document functions, assets and risks across the supply/value chain.
  - Facilitate TP policy setting and robust TP documentation by recording the actual conduct of parties and help to align TP outcomes with value creation.



# Transfer Pricing Documentation

## Potential Application (3)

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- Immutable and permanent records of transactions provided by Blockchain and DLT may:
  - Reduce/eliminate the possibility of falsifying documentation and enhance integrity of TP documentation.
  - Facilitate the reconciliation of intra-group transactional flows which may be different for billing and payment flows.
  - Reduce compliance and audit defence burdens because of the ease of retrieving records which are time stamped. This helps MNC to respond to audits efficiently.
  - Avail transactional level data that can enhance trust by providing contemporaneous record of transactions and help to substantiate what is described in master file, local file and CbCR.

# Availability of comparable data for benchmarking

## Issues

- Unavailability of comparable transactions inhibits tax administrations efforts to analyse TP arrangements.
- Sometimes comparable data may exist but it may not be publicly available or access may be costly.
- Significant variability may also require several adjustments to account for transactional, sector and regional specific factors.

## Potential application

- Blockchain and DLT may lead to more transparent and retrievable transactional records or ledgers.
- If the resulting transactional-level data is made available to both tax administrations and taxpayers, it can address the lack of comparables.
- This may facilitate benchmarking analysis and further reduce reliance on secret comparables.
- It may also be useful for TP Policy planning.
- BUT may still require adjustments!

# Functions, assets and risk analysis and the attribution of profits

## Issue

- A tax administrations lack of information on the MNCs supply or value chain may limit its ability to conduct an effective functional analysis.
- It may also be difficult to determine the contribution of related parties and the method to be used to split profits.

## Potential application

- Blockchain and DLT can provide detailed view of transactions within the MNC and its supply/value chain and also record actual conduct of related parties both within and without the jurisdiction.
- This leads to greater transparency by enabling the MNC and tax administration to track the movement of goods and/or services as well as intangible property across the supply/value chain.
- The resultant immutable, permanent and trusted transactional level data which can also be viewed in real time provides a collective view of the MNC and may facilitate FAR analysis.
- The record of actual conduct of related parties and decision making may facilitate an analysis of their contribution throughout multiple jurisdictions and can help in attributing profits to an entity in a specific jurisdiction.
- It may also support the analysis of the development, enhancement, maintenance, protection and exploitation of intangibles by identifying where value is created and possibly enable more accurate allocation of intangible related returns.

# Authenticating services rendered and costs recharged

## Issue

- Management and service fees were cited in BEPS as a major source of base erosion for developing countries.
- Presently onerous for tax admins to verify whether services were rendered and actual costs recharged.

## Potential application

- Smart contracts can help to ensure transaction between related parties took place and the underlying terms.
- Smart contracts can also ensure parties conduct when executing intra-group contracts was fundamentally consistent with the contracts.
- Immutability and transparency inherent in blockchain and DLT can enhance trust with both the internal and external auditors for the MNC.

# More effective dispute resolution and cooperative compliance

## Issues

- If a tax administration does not trust the data underpinning the TP Policy it will challenge the TP Policy.
- Disputes may also arise on the comparables adopted for benchmarking or whether a transaction was actually undertaken (actual conduct of parties).

## Potential application

- Blockchain and DLT may avail an immutable audit trail for transactional level data which can help to establish whether a related party transaction took place, where it originated, when it occurred and the underlying terms.
- This may minimise disputes based on transactional data. For example, IBM Corp and IBM Global Financing Unit report that it saved up to 45% of time it used to spend on transaction disputes within its own network of more than 4,000 partners and suppliers and that the DR time dropped from 40 days to 10 days!
- More and better data may also aid MAP negotiations and make the process more efficient and effective.
- Taxpayers may also provide the same information, consistently, to multiple tax administrations at the same time by allowing access to their Blockchain networks hence reduce disputes.
- The enhanced trust provided by Blockchain's features may also facilitate cooperative compliance.

# Cash pooling arrangements

## Issues

- Complexity in the execution of cash pool arrangements
- Benchmarking and splitting residual profits among cash pool participants.

## Potential application

- Smart contracts and smart payments may facilitate an easy and efficient flow of financial transactions without involving financial institutions.
- The financial transaction may also be benchmarked in real time based on comparable data.
- May enhance transparency and recording the movement of cash as well as interest charged or earned in the cash pool by each participant
- May facilitate the splitting of residual profit between the cash pool leader and cash pool participants in ways that adhere to the arms length principle.

# TP concluding remarks

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- MNCs may adopt permissioned private rather than public blockchains.
- However, as evidenced by the IBM & Maersk Blockchain solution for cross border supply chain, tax and customs administrations may be granted limited access.
- Such access can potentially extended to more than one tax and customs administration.
- At the very least, blockchain and DLT will enhance the tax and customs administrations understanding of the MNCs supply chain.
- It will also enable the MNCs to provide robust and trusted TP documentation that can help it to discharge evidentiary burdens, fast-track audits and minimise disputes.

# The Role of New Technologies in Building Up National Registries



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# Content

- RegTech as a potential source of solutions
- Central registers
- Shared utility functions and cloud applications
- Distributed Ledger Technology
- Policy recommendations

# RegTech as a potential source of solutions



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# What is Regtech?



# Why RegTech?

- near-real time reporting capabilities
- process automation
- development of infrastructure to handle increased data volumes
- improvements to data sharing capabilities
- security and data confidentiality
- reduced costs

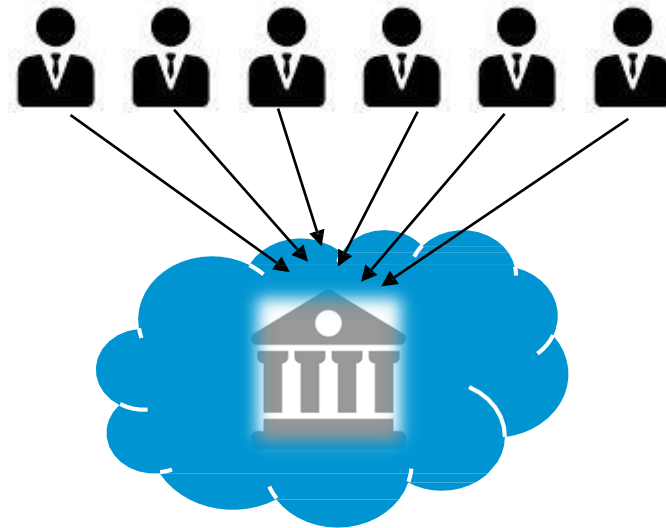
# What are the main requirements for RegTech?

- harmonized global regulatory environment to create a common set of rules
- accessible guidance for institutions interpreting regulatory requirements

# Central register



# Central register



# Shared utility functions and cloud applications

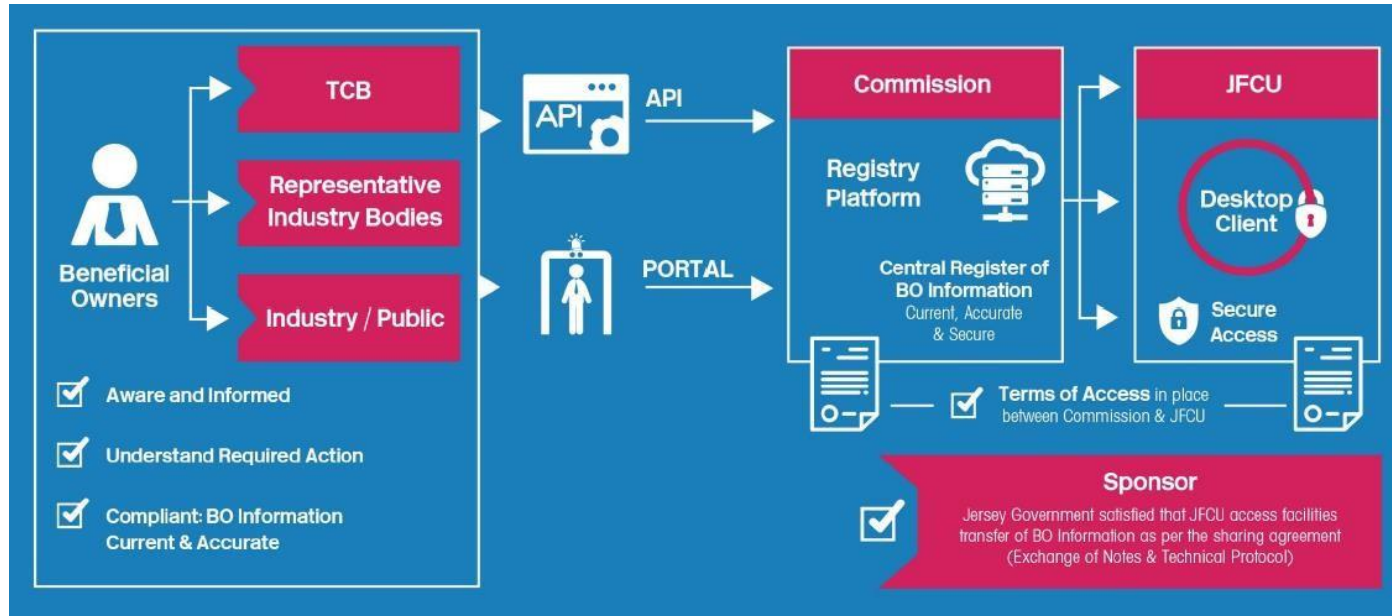


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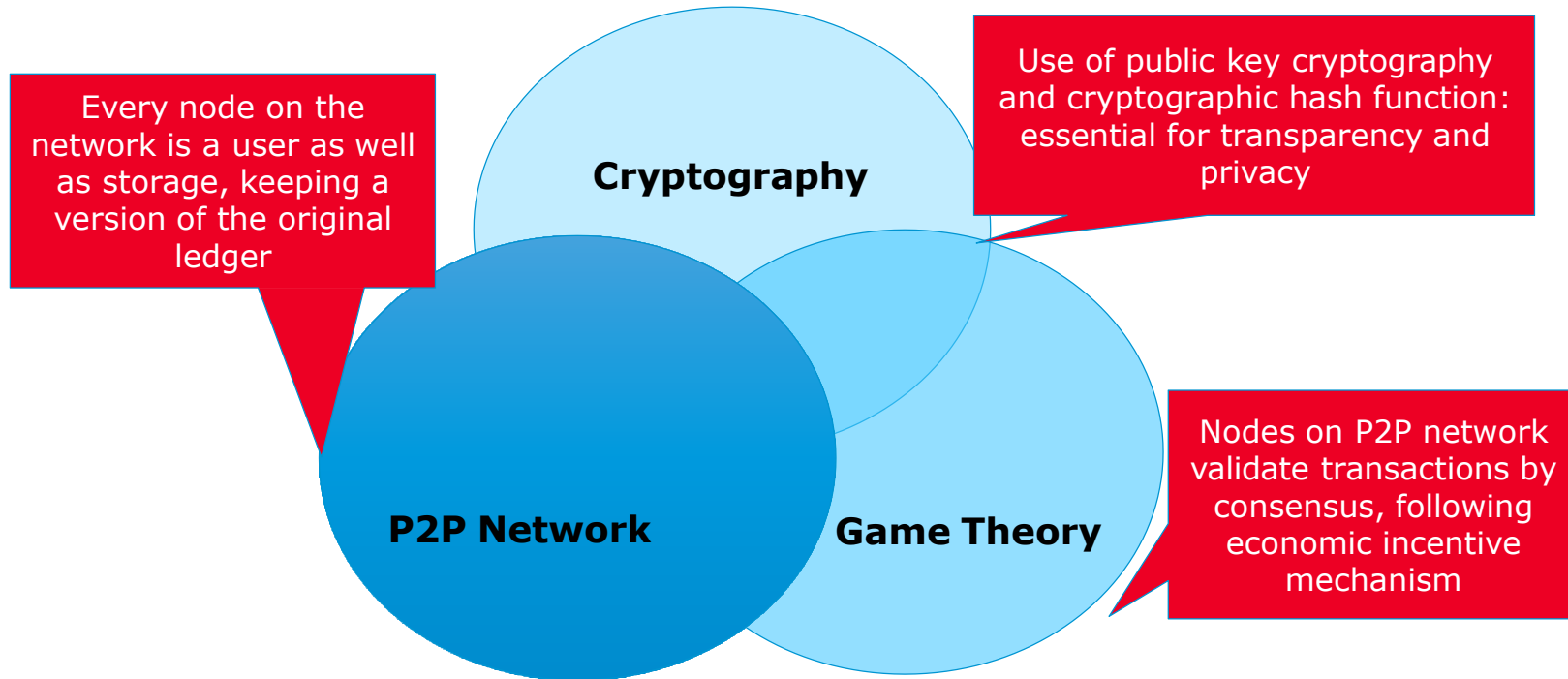


# Shared utility function in Jersey



Source: Government of Jersey and Jersey Financial Services Commission, Central Register of Beneficial Ownership, available: <https://www.jerseyfsc.org/pdf/Beneficial-Ownership-Outreach-Presentation.pdf>

# What ensures the strength of the blockchain



# Blockchain and beneficial ownership registers



# Benefits of DLT



Real-time accuracy



Verification of ownership information



Increased security and control over sensitive personal and commercial information

# Benefits of DLT



Enhanced audit transparency



Potential for global registry



Reduced risk of corruption, fraud and increasing trust



Reduced compliance burden for regulated entities

# DLT and its application for ownership data

- Land registries
- Foundations
- Tracking and tracing of valuable good, e.g. diamonds
- Corporate records

## Challenges

Ledger  
transparency

Cyber risk

Operational  
risk

Violation of  
data privacy

Insider  
trading and  
market  
abuse

Identity theft

Tampering  
with data  
before  
storage

Brute force  
attack before  
storage

Distributed  
denial of  
service  
attack

Insufficient  
coding

Key person  
risk

Negligent  
performance

# How can Tax Administration move along the Digital Curve?





# The six stages of digitalisation of tax administration

Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	
“E-file”	“E-accounting”	“E-match”	“E-audit”	“E-assess”	“E-government”	
Use of standardized electronic form for filing tax returns required or optional; other income data (e.g., payroll, financial) filed electronically and matched annually	Submit accounting or other source data to support filings (e.g., invoices, trial balances) in a defined electronic format to a defined timetable; frequent <i>additions and changes at this level</i>	<b>Paradigm shift</b>	Submit additional accounting and source data; government accesses additional data (bank statements), begins to match data across tax types and potentially across taxpayers and jurisdictions in real time	<b>Transformational</b>	Government entities using submitted data to assess tax without the need for tax forms; taxpayers allowed a limited time to audit government-calculated tax	All government interaction with citizens and enterprises digitalized; seamless international digital exchange of information between law enforcement and tax authorities in different countries

Source: EY

# What do tax administrations need to take to move along the digital path

- **Strategy and capability**
  - Understand and address how AI can form an integral part of business strategy
  - Actively manage data to verify that it is fit for purpose, relevant
- **Operating model**
  - Secure senior, executive-level support within the organization,
  - Consider how cross-department sharing of skills, insights, leading practices will work **Initiative design**
  - Experiment with small-scale pilots
  - Consider longer term processes, resources required
- **Intervention design**
  - Tackle cultural barriers via change management programs
- **Workforce**
  - Create a talent management strategy
  - Proactively address broader workforce implications
- **Managing results**
  - Consider political ramifications of what AI (and advanced/predictive analytics) may tell you about revenue authority priorities

## Automation at scale: Most relevant for a tax authority?

- ▶ Strong, service-delivery focused leadership needed
- ▶ Cross-fertilize AI / automation skills between departments
- ▶ Mix between tactical taxpayer service and long term strategic process / approach change
- ▶ Workforce dissatisfaction around potential impacts of automation
- ▶ Proactive talent management – upstream / downstream
- ▶ Flexibility to manage unexpected results
- ▶ Managing (leveraging) public perception around AI use

Source: EY

# Threats to Tax Administration

- New opportunities may be opened up for cyber crimes
- Lack of understanding and technological competence may increase the gap between the tax administration and public sector, as entirely new business models are being developed
- Lack of traceability, if no identification is secured that ties the digitalised asset, including crypto-currencies, to the taxpayer
- Opportunities for the growth of shadow economy
- Currently no reliable mechanism is developed to secure the integrity of data that is fed into the DLT
- Fully virtual existence
- Challenges to source taxation
- Challenges to customs revenues for cross boarder goods from 3D printing
- Handling the transition from the old to new technology

# Taking forward the debate

- What criteria should be used to determine which technology is best suited to deal with issues?
- How to decide on the balance between in-house and outsourced technology
- How to maintain maximum flexibility for future policy changes
- What monitoring and evaluation tools are available to assess impact of chosen technology
- Can technology help in improve the tax policy design?
  - Modernizing tax incentives
  - Substitution of price subsidies by income support
  - Universal Basic Income or Refundable VAT credits
- How can new technologies be used to counter corruption and other illicit flows
- Developing a digital roadmap
- Reviewing legislative barriers

# Developing Best Practices Amongst CATA Countries

- Agreement on basic standards with respect to a system architecture
- Research on functionality of different technological solutions
- Addressing the issues of legal liability, privacy, security, authentication, authority and critical scalability
- Ensuring cross-border flow of information on beneficial ownership
- Developing a model digital roadmap
- Capacity building for commissioners
- Inclusion of more technicians and data scientists to bridge the knowledge gap in discussion, design and implementation
  - Future professions – content curation for corpus of knowledge aggregation and machine training specialists

# Policy Recommendations for CATA Tax Administrations

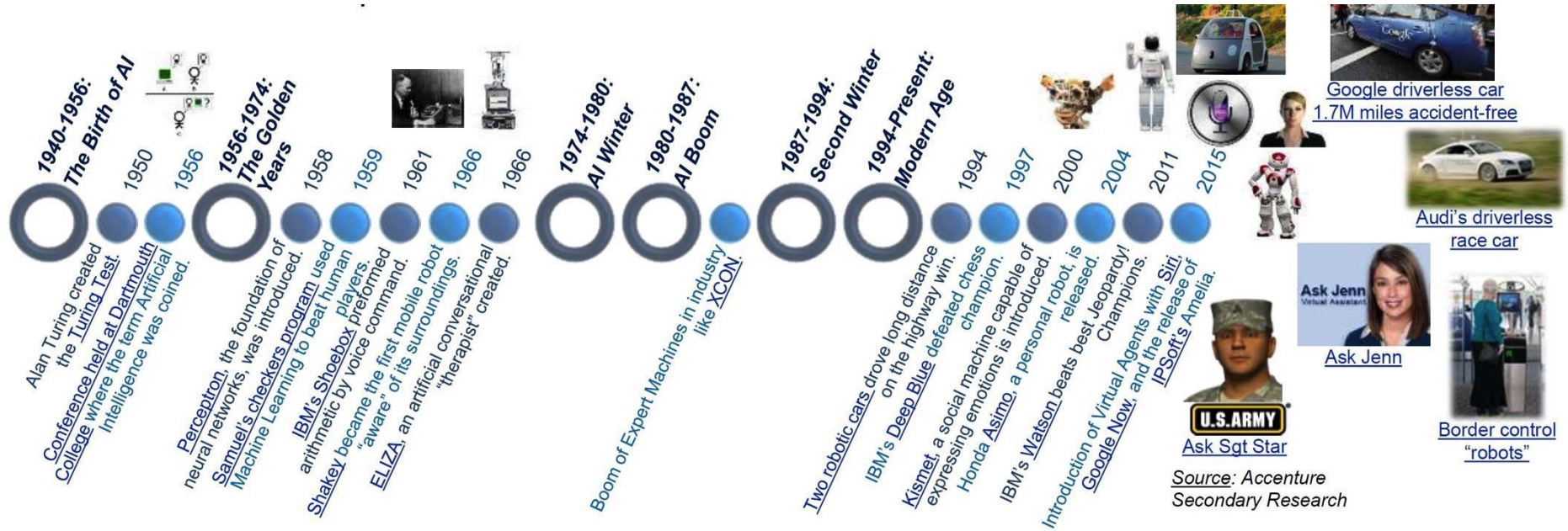
- Building solutions gradually
- Research on functionality of different technological solutions
- Addressing the issues of legal liability, privacy, security, authentication, authority and critical scalability
- High quality data as a key factor to improve performances
- Providing the environment of trust and accountability around the development and use of technology
- Emphasis for better dialogue between business and governments

# Annex I

## Artificial Intelligence and Tax Compliance Opportunities and Threats

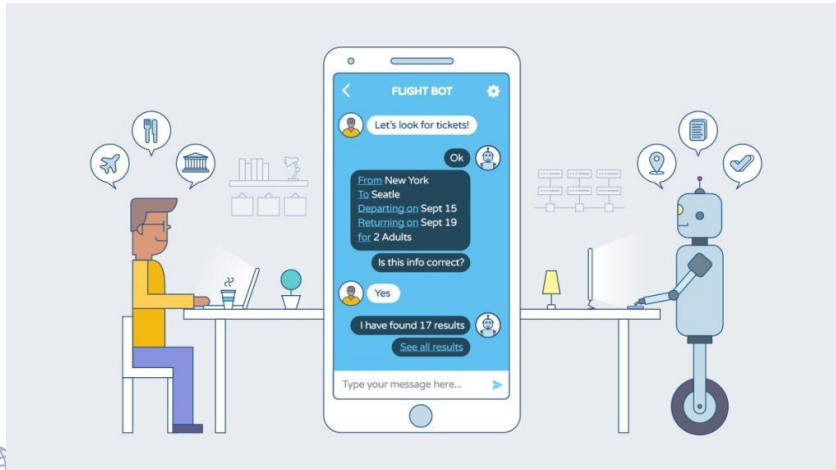
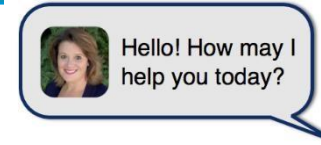
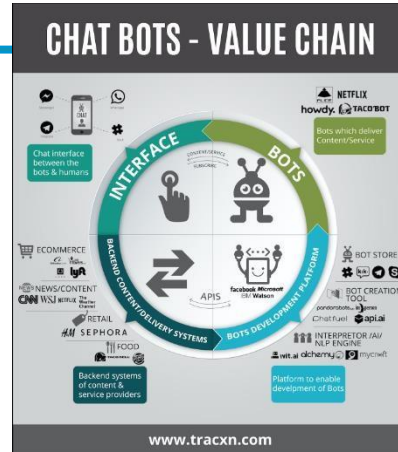


# History of AI





# AI



# Artificial Intelligence for Tax Purposes

- *Intelligence:*

„Intelligence is the ability to solve problems, or to create products, that are valued within one or more cultural settings”

(Gardner 1983)

- *Artificial:* something which does not occur automatically

- Artificial intelligence for tax purposes:

1. Problem identification – which issue should be solved
2. What manual work can be eliminated or augmented through AI
3. What additional insights can be generated from the machine’s work

“AI is the science and engineering of making intelligent machines and computer programs to achieve a goal. It’s about creating a computer mind that can think like a human. It’s about machines taking action”

(Ladd Muzzy)

# AI Functions for Tax Compliance Purposes

AI powered by **machine learning** and **big data**

- Natural Language Processing
- Image recognition
- Fuzzy matching
- Advanced statistical techniques
- Virtual Support systems
- Chatbots

# AI Functions for Tax Compliance Purposes

Examples of AI use today:

- Fuzzy matching – data extraction, analysis and labelling to assist further classification by tax officers
- Natural language processing and ML – analysis of the complete and voluminous sets of data/ documents for extraction of valuable elements

Added benefits:

- Chatbots / network of chatbots running the same analytical algorithm generates a single pool of data, as compared to the disaggregated fragmented tax admin staff each working with their own methods and interpretations – less loss of data and knowledge
- Freeing valuable time from routine tasks to focus on tasks that require professional judgement (risk: routine tasks are required for training at initial stages, so need to be eliminated with caution)
- Improved customisation and personalisation of services, greater citizen engagement

# AI Use for Tax Administrations

Increased transparency  
Reliability of data  
Real-time reporting  
Automation of payments

Domestically: **Filing taxes, audits**

EU-level: **VAT/ Carousel Fraud**

Internationally: **Transfer pricing**

All levels: **Tax avoidance and Evasion, money laundering**

# AI and Tax Compliance: Business Perspective

- Financial implications
- Leaner tax departments
- Direct flow of data
- Chatbot to answer tax related questions and doubts (example of IRS)
- Less scope for errors
- Need for distress tests on raw data before submitting to tax administrations
- Understanding the way tax administrations will use the data

# AI and Tax Compliance: Business Perspective

- AI will become a digital assistant (replacing basic capabilities of first and second-year tax associates).
- AI will begin to make tax determinations of data (e.g. is an expense 50%, 100%, or non-deductible).
- AI will be able to optimize the best outcome and course of action for a company by ingesting a wide variety of supply chain data, SKU level sales data (indirect), tax (direct) data, and external environment data all at the same time to optimize specific outcomes like the effective tax rate (ETR) and tax efficient profitability.

# How businesses embrace AI (TBC – need cases)

- Project design, execution, and investment planning
- Worker-resource development and job disruption
- Data access
- Ethics and privacy
- Regulations, law, and government policy



# Annex II

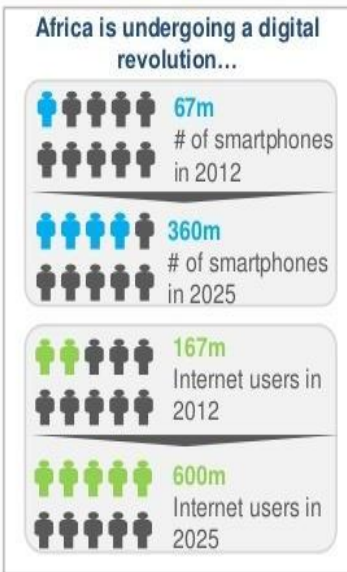
## Mobile Money Payments Platforms: Opportunities for Leapfrogging Taxation in Emerging and Developing Countries



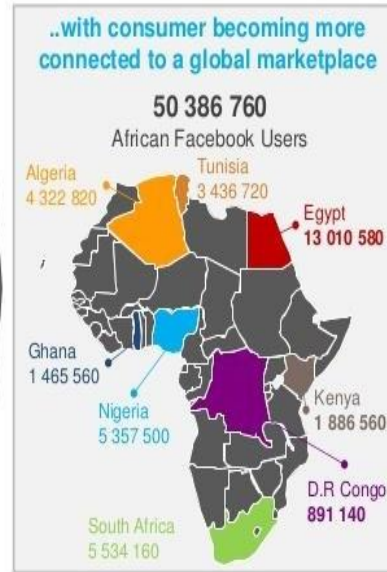
# Africa is Going Digital!

More than 720 million Africans have phones, some 167 million use the Internet, and 52 million are on Facebook

## Africa is going Digital



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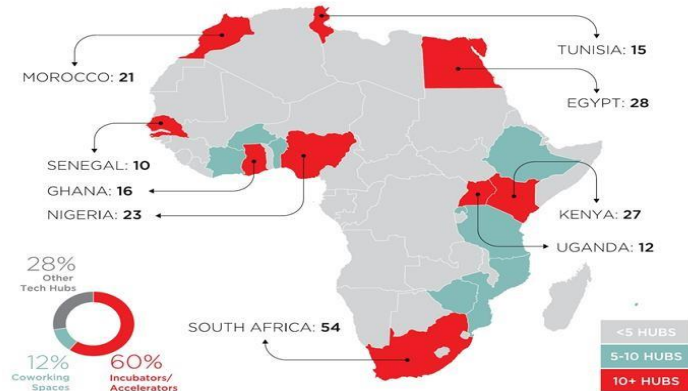


\*source: www.socialbakers.com

**GSM** Ecosystem Accelerator

A few figures on tech hubs in Africa

**AFRICA:**  
**314 ACTIVE\* TECH HUBS IN 93 CITIES IN 42 COUNTRIES**

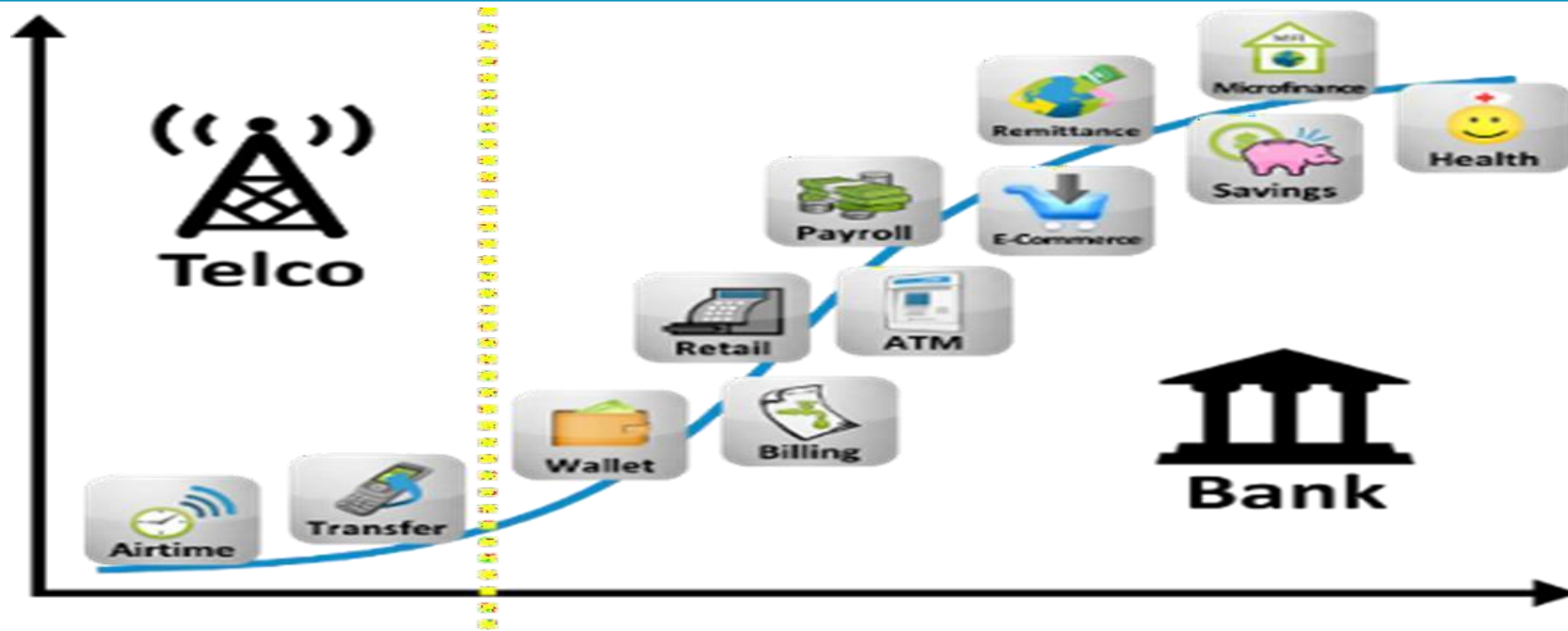


<p>50%</p> <p>5 Countries</p> <p>South Africa, Kenya, Nigeria, Egypt and Morocco totalise 50% of the tech hubs in Africa</p>	<p>4.3 years old</p> <p>Average age of tech hubs is 4.3 years old (average launch date: 2012)</p>	<p>13% of Tech hubs</p> <p>13% of tech hubs have partnerships with mobile operators. Orange, MTN and Vodafone are the most represented.</p>
<p>Microsoft, Google</p> <p>49% of Tech hubs</p> <p>49% of tech hubs have partnerships with non telecom corporations. Microsoft, Google and Ahhoka are the most represented.</p>	<p>1.5 millions followers</p> <p>Tech Hubs Facebook pages have more than 15 million followers</p>	<p>600 thousand followers</p> <p>Tech hubs Twitter pages totalise more than 600 thousand followers</p>

We define "Tech Hubs" as physical spaces designed to foster the success of tech projects, joining them as incubators, accelerators & coworking spaces to accelerate the growth of startups through: mentorship, legal, financial and other services.  
 \* Data by country includes supporting tech projects: incubators, hubs, coworking, accelerators, and other working spaces.  
 \* Tech hubs are defined as active when they show recent online activity (on their website or on social networks) or have been reported as active by local media in the last 12 months.  
 \* Data were collected on a total of 322 incubators.  
 \* SOURCES: primary and secondary researches carried out by GSM Ecosystem Accelerator between May and July 2016.

<http://gsm.com/ecosystemaccelerator>

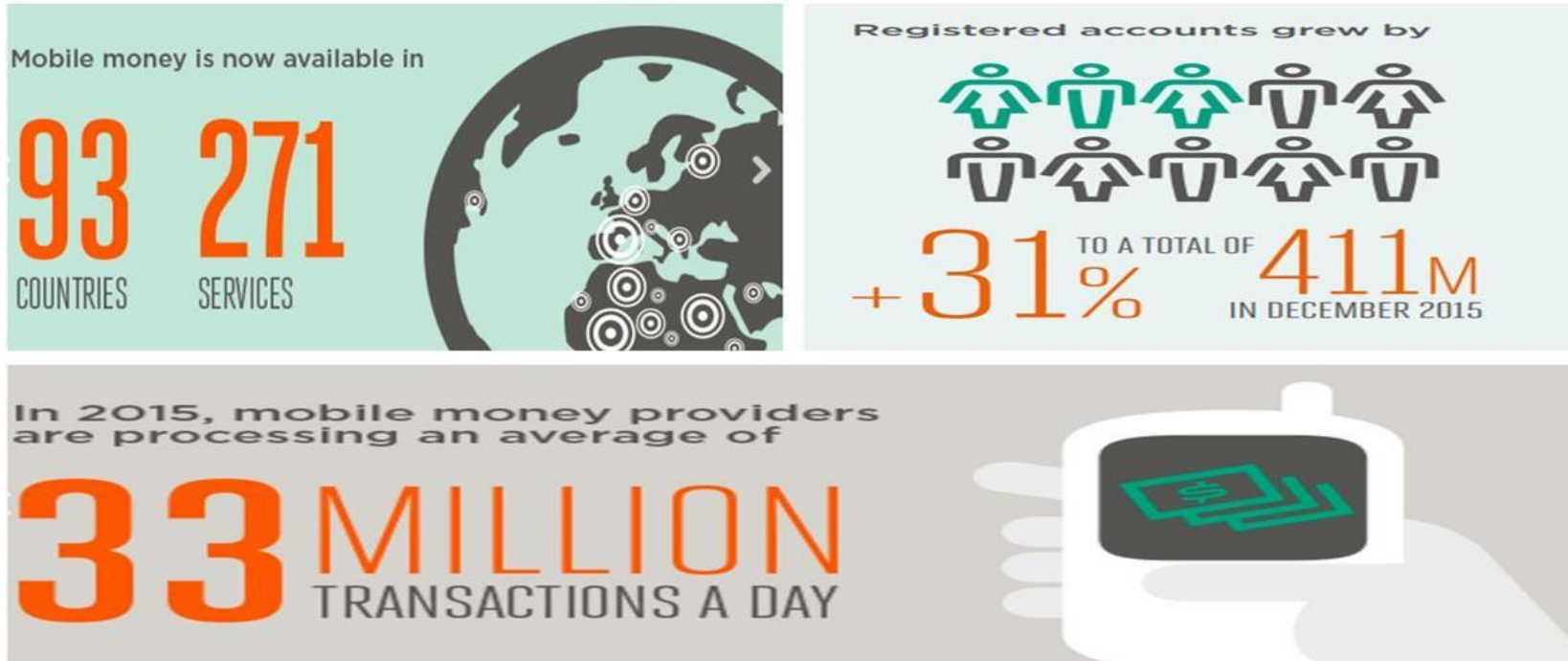
# Evolution of Mobile Money



## MOBILE MONEY MARKET EVOLUTION

Source: Stefan Wolfe, <http://www.kachwanya.com/2015/01/12/africas-mobile-money-transfer-mmt-future/>

# Evolution of Mobile Money



Source: GSMA 2017

# Current Usage by African Tax Administrations: Payment of Taxes



**Orange Money** 

pay your **Income tax**  
 to MRA with any mobile now!



**Paying Taxes and other fees has never been easier.**

To pay, dial \*182# and follow the steps below.

- Select Pay Bill
- Select RRA Payment
- Enter your reference number
- Confirm your Mobile Money PIN to complete payment.

Explore the New World of Better Money.



\*With restrictions for some paid services.



**Mobile Money**



**MAKE ENQUIRIES &  
 PAY YOUR TAXES  
 USING YOUR MOBILE PHONE**



# Mobile Money Platforms: Opportunity for and/or threat to enhancing tax compliance?

According to the OECD:

- Facilitate real-time Reporting
  - Can facilitate better registration of payments and transactions thus opening opportunities for “**real time reporting**” of transactions that was **non-existent in the cash era**.
- Curbing underreporting
  - The governance and security measures that are part of payment systems make it more difficult for businesses to underreport.
- Detecting and deterring fraud
  - Third party information from mobile payment service providers may also make detection of fraudulent activities easier.
- As a result **Integration with taxpayers systems** can facilitate real-time reporting, curb under-reporting and detect and prevent fraud



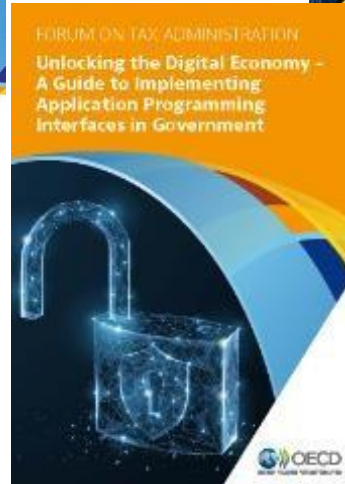
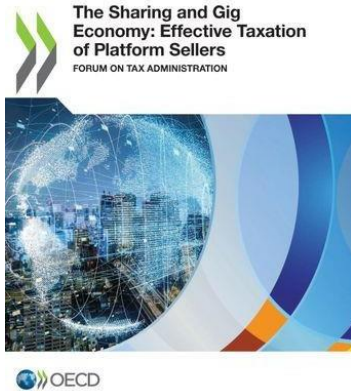
# Mobile Money Platforms: Opportunity for and/or threat to enhancing tax compliance?

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- a) **Expanding the tax base:** Information can be used to detect economic activities in informal sector leading to identification of unregistered taxable persons.
- b) **Audit trail and evidence gathering:** Data can help in tracking receipts and payments of business their suppliers and businesses down the economic activity chain.
- c) **Risk profiling:** Information from third parties and taxable persons transactions on mobile platforms can be matched with filing patterns to identify business not filing returns and/or not meeting their tax obligations
- d) **Pre-filing tax returns:** Data from mobile payment platforms could, potentially, be used to pre-fill tax returns.
- e) **Corruption, bribery and money laundering:** ICT based interaction reduces interaction with revenue bodies hence a powerful tool in enhancing transparency.
- f) **Beneficial ownership:** Can assist with tracking beneficial ownership of companies and trusts.

# Annex III

## The Digital Age and Tax Administration





# Annex IV Taxation of Cryptocurrencies and Taxpayers' Identification: Main Challenges



# Characterizing crypto currencies for tax purposes

Legal characterization	Taxable event	Taxation triggered
<ul style="list-style-type: none"><li>• Income</li><li>• Property/commmodity</li><li>• Financial instrument</li></ul>	<ul style="list-style-type: none"><li>• Closing transaction vs. fiat trade</li><li>• Transfer between exchanges and wallets</li><li>• Mining</li></ul>	<ul style="list-style-type: none"><li>• VAT i.e. sale or exchange of digital currencies</li><li>• Corporate Income Tax i.e. if trader = business income (deductions?) if assets = capital gains tax (valuation)</li><li>• Personal Income Tax i.e. real property, capital gain</li></ul>

# Jurisdictional approaches to taxing cryptocurrencies (1/3)

Jurisdictions	Characterization of cryptocurrencies for tax purposes	Tax consequences
UK	Asset – private money	Subject to VAT only for goods and services paid for in Bitcoin* ( <i>ECJ Skatteverket v. David Hedqvist</i> ) Capital gains tax for gains and losses for individual CIT for currency exchange
Norway/Spain/Finland	Property	Subject to VAT only for goods and services paid for in Bitcoin* Capital gains tax
US	Property	General tax principles apply
Slovenia	Income	Subject to Income Tax
Israel	Income	Subject to Income Tax

# Jurisdictional approaches to taxing cryptocurrencies (2/3)

Jurisdictions	Characterization of cryptocurrencies for tax purposes	Tax consequences
Germany	Financial instrument/private property	No capital gains tax If held less than 1 year –progressive gains tax up to 45% No VAT
Switzerland	cash or movable assessable assets	Capital gains tax/wealth tax
Canada	Commodity- barter transaction	A gain or loss from a bitcoin transaction will be treated as either (i) income or loss from business or property or (ii) a capital gain or loss, GST/HST

# Jurisdictional approaches to taxing cryptocurrencies (3/3)

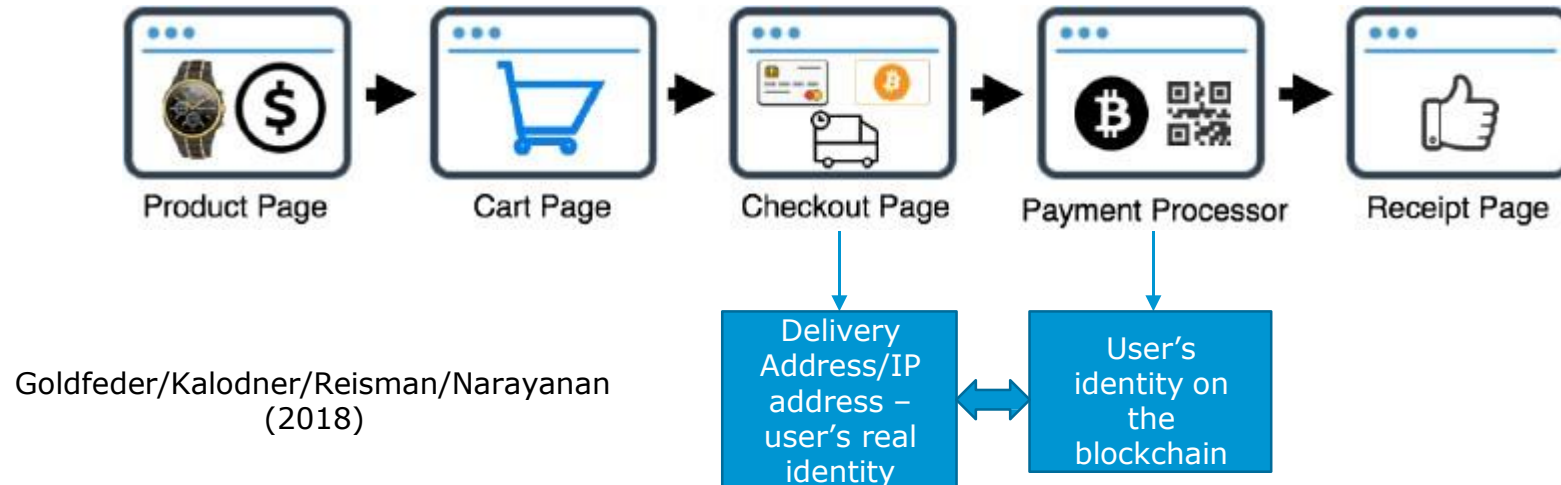
Jurisdictions	Characterization of cryptocurrencies for tax purposes	Tax consequences
India	Capital asset	Income tax/Capital gains tax/GST under discussion (18%)
Singapore	Mode of payment	CIT on profit from trading operations Tax on goods and services for bitcoin traders- VAT analogue
Hong Kong	Virtual commodity	Income Tax
Brazil	Asset	Depending on the transaction (income tax, financial transaction tax, donation tax)
China	Has yet to take any stance on the status of crypto for the purpose of taxation	Assumptions: Personal Income Tax if property/commodity Or, fall under the incidental income

## 2.2. Identification of the taxpayer and the realized income

- Need to accurately identify both the taxpayer and the taxable event
  - The identity of the individuals behind transactions with cryptocurrencies are not visible on the blockchain
  - Otherwise all transactions are fully transparent
- Perceived or real anonymity? – linking internet activity (cookies), payments with cryptocurrencies, and the real identity of the user
- Opportunities for law enforcement authorities – incl. tax authorities

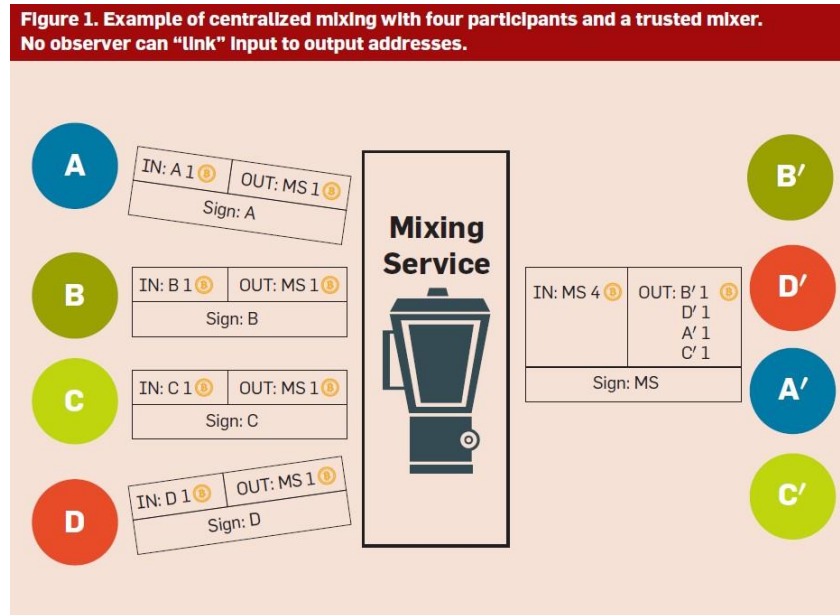
# Anonymity – Taxpayer’s Identification

- Non-sophisticated users – linking of a user’s cryptocurrencies addresses with each other and with external information, including identity, is straightforward:



# Anonymity – Taxpayer’s Identification

- Sophisticated users – mixing techniques

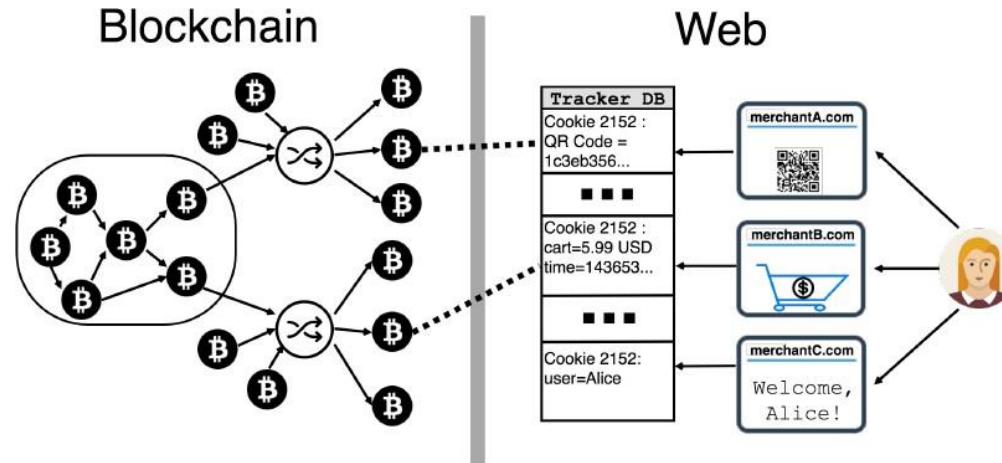


Genkin/Papadopoulos/  
Papamantou  
(2018)



# Anonymity – Taxpayer’s Identification

- Sophisticated users – mixing techniques (e.g. CoinJoin) – real identity revealed if two and more purchases are executed in this manner



Goldfeder/Kalodner/Reisman/Narayanan  
(2018)

# Pseudo-anonymity – utilizing proxies for taxpayer identification

- Existing technical possibility to link real identity of users and their cryptocurrency wallets
- Need for collaboration with tech-companies that offer a cryptocurrency payment option
- *Amazon Technologies, Inc.* – U.S. Patent (April 17, 2018) - technology for a streaming data marketplace
  - Creates a stream of correlated data between bitcoin addresses and shipping addresses
  - Telecommunication providers subscribe and correlate the combined data with IP addresses based on country of origin
  - Law enforcement agency becomes a 'customer' and receives a correlated data of bitcoin, shipping, and IP addresses.

# Legal and Regulatory issues remaining

- Data protection issues (GDPR?)
- Regulate brokers who mediate virtual currency transactions such as exchanges and accumulate taxation information
- Automatic exchange of correlated information (OECD)
  - Notification to the country of residence
- Sophisticated mixing techniques – ban(?)

## II. Concluding remarks

- Blockchain goes **far beyond** crypto currencies
- A broad **international consensus** on characterisation issues is needed
- Government and Business **cooperation** for robust identification techniques

# Selected Readings

## Blockchain and Tax

- "Blockchain 101 for Governments" - WU Global Tax Policy Center (WU GTPC) at the Institute for Austrian and International Tax Law of Vienna University of Business and Economics (WU, Wirtschaftsuniversität Wien) and the Digital Economy Taxation Foundation.
- "Blockchain: Taxation and Regulatory Challenges and Opportunities", WU Global Tax Policy Center (WU GTPC) at the Institute for Austrian and International Tax Law of Vienna University of Business and Economics (WU, Wirtschaftsuniversität Wien) and the Digital Economy Taxation Foundation - [https://www.wu.ac.at/fileadmin/wu/d/i/taxlaw/institute/WU\\_Global\\_Tax\\_Policy\\_Center/Tax\\_Technology/Backgrd\\_note\\_Blockchain\\_Technology\\_and\\_Taxation\\_03032017.pdf](https://www.wu.ac.at/fileadmin/wu/d/i/taxlaw/institute/WU_Global_Tax_Policy_Center/Tax_Technology/Backgrd_note_Blockchain_Technology_and_Taxation_03032017.pdf)
- "Bridging the Digital Gap: How Tax Fits into Cryptocurrencies and Blockchain Development", Schwanke Amelia, <http://www.internationaltaxreview.com/Article/3671870/Curacao-Archive/Bridging-the-digital-gap-How-tax-fits-into-cryptocurrencies-and-blockchain-development.html>
- "New Frontiers: Tax Agencies Explore Blockchain", Soong Johnston S., Lewis A., <https://www.taxnotes.com/tax-notes-international/tax-system-administration/new-frontiers-tax-agencies-explore-blockchain/2017/04/03/swkw?highlight=blockchain>

## Blockchain and Transfer Pricing

- "Blockchain, Transfer Pricing, Customs Valuations, and Indirect Taxes: Transforming the Global Tax Environment" by Sam Sim, Jeffrey Owens, Raffaele Petrucci, Romero J. S. Tavares, and Clement Migai, Bloomberg BNA Vol.26, No.4 June 2017.
- "Blockchain/DLT: A game-changer in managing MNCs intercompany transactions", IBM Research Whitepaper, June 2017 - [https://www.ibm.com/think/fintech/wp-content/uploads/2017/11/IBM\\_Research\\_MNC\\_ICA\\_Whitepaper.pdf](https://www.ibm.com/think/fintech/wp-content/uploads/2017/11/IBM_Research_MNC_ICA_Whitepaper.pdf)
- "Potential Application of Blockchain in Multinational Transfer Pricing", Sagar Wagh, March 2017 - <https://www.linkedin.com/pulse/potential-application-blockchain-multinational-transfer-sagar-wagh/>
- "Blockchain Technology: Possible future of digital Transfer Pricing", EY (Paresh Parekh, Mantham Dholakia and Sonam Aggarwal), November 2017 - <https://indiataxinsightsblog.ey.com/2017/11/10/blockchain-technology-possible-future-of-digital-transfer-pricing/>
- "Eight Transfer Pricing Processes Suitable for Automation", John Farooque, August 2017 - <https://www.linkedin.com/pulse/eight-transfer-pricing-processes-suitable-automation-seven-dar/>
- "Automation of tax administration: path to more effective transfer pricing audit", Vladislav Burilov, [http://www.academia.edu/33757033/AUTOMATION\\_OF\\_TAX\\_ADMINISTRATION\\_PATH\\_TO\\_MORE\\_EFFECTIVE\\_TRANSFER\\_PRICING\\_AUDIT](http://www.academia.edu/33757033/AUTOMATION_OF_TAX_ADMINISTRATION_PATH_TO_MORE_EFFECTIVE_TRANSFER_PRICING_AUDIT)
- "Blockchain technology and its potential in taxes", Deloitte, December 2017 - [https://www2.deloitte.com/content/dam/Deloitte/pl/Documents/Reports/pl\\_Blockchain-technology-and-its-potential-in-taxes-2017-EN.PDF](https://www2.deloitte.com/content/dam/Deloitte/pl/Documents/Reports/pl_Blockchain-technology-and-its-potential-in-taxes-2017-EN.PDF)
- "Block Chain and tax compliance, what's behind these new terms?", Robert Riise, January 2018.



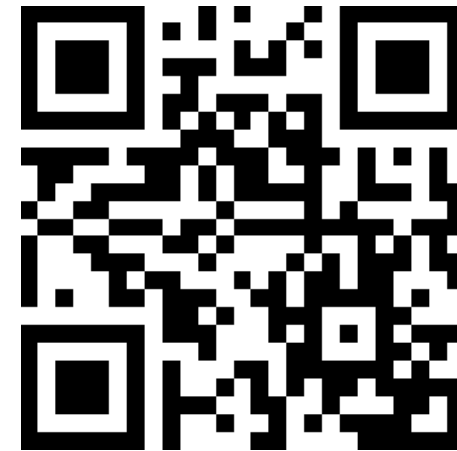
VIENNA UNIVERSITY OF  
ECONOMICS AND BUSINESS

Institute for Austrian and International Tax Law,  
WU (Vienna University of Economics and Business)  
Welthandelsplatz 1, Building D3.2  
1020 Vienna  
Austria

**WU Global Tax Policy Centre**

Tel: [+43-1-31336-4890](tel:+43-1-31336-4890)

E-Mail: [globaltaxpolicycenter@wu.ac.at](mailto:globaltaxpolicycenter@wu.ac.at)



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**THANK YOU**