The Committee of Experts on International Cooperation in Tax Matters

17-20 October 2017
Geneva

Prepare b! the "# Global Tax Polic! Center $"# GTPC%
at the Instit&te for '&strian an International Tax (a)
of *ienna #niversit! of +&siness an Economics
$"#, Wirtschaftsuniversität Wien%

The " # Global Tax Polic! Center[1] of *ienna #niversit! of +&siness an Economics in collaboration)ith -e) Econom! Taxation an)ith s&pport of the .i/ital Econom! Taxation 0o&n ation[2] has embar1e on the pioneerin/ research in the fiel of i/ital econom! an its effect of taxation)ith respect to compliance an a ministration2 The aca emic research is enhance b! a series of m&lti-isciplinar! meetin/s)here i entifie iss&es are openl! an criticall! isc&sse bet)een the representatives if aca emia, /overnment officials an b&siness comm&nit!2 To ens&re the /lobal expos&re, research is carrie o&t in isperse locations aro&n the)orl 2 The follo)in/ meetin/s)ere hel s&ccessf&ll!3 *ienna 14-15 March 2017, 6in/apore 17-17 '&/&st 20172 In 2017 the follo)in/ sessions)ill ta1e place3 -e) 8or1 22 Ma! 2017, 6in/apore 9&l! 2017 an China October 20172

This note is the first o&tp&t of the .i/ital Tax Transformation pro:ect,)hich aims to e;&ip the officials)ith essential information abo&t the +loc1chain technolo/!2 'pplication of the bloc1chain an its &n erpinnin/ elements3 .istrib&te (e /ers an 6mart Contacts)ith the aim of mo erni<in/ an improvin/ p&blic services are at the core of the research2

1. What is blockchain?

+loc1chain is a ecentrali<e istrib&te le /er technolo/!2 It allo)s creation, vali ation an encr!pte transaction of i/ital assets to happen an /et recor e in an incorr&ptible)a!2

't its heart, it is a atabase of /ro&ps of transactions $bloc1s% that are lin1e to the previo&s /ro&p of transactions $the chain% an is replicate an istrib&te to ever!one)ho participates in the net)or1 so that all copies of the atabase are i entical2 +loc1chain recor s ever! transaction that ever happens, an no recor s are ever elete 2

2. What is a distributed ledger?

' istrib&te le /er is a t!pe of atabase that is share , replicate , an s!nchroni<e amon/ the members of a net)or12 The istrib&te le /er recor s the transactions, s&ch as the exchan/e of assets or

The broa er implications of +loc1chain be!on finance is escribe in a re report b! the E&ropean Parliament, +loc1chain co&l chan/e the lives of E# citi<ens[E]

for certif!in/, re/isterin/ an trac1in/ /oo s an services as the! move alon/ s&ppl! chain2 To1ens can ∋&el! i entif! /oo s on the bloc1chain,)ith each transaction time stampe in a transparent manner2

#*ii$ Public /d'inistration

The potential =eGovernment> services an applications incl& e i entit! mana/ement, tax collection, lan re/istr!, istrib&tion of benefits, i/ital c&rrencies an an! t!pe of /overnment recor 2 +loc1chain technolo/! co&l allo) recor s to be verifie an create)ith /reater spee , transparenc! an sec&rit!2

#*iii$ %a0 /d'inistration

The bloc1chain has the potential to isr&pt or at least mo erni<e acco&ntin/ an tax pa!ments2 In this context, ho)ever, for the benefits of &n erl!in/ technolo/! to be release , the consi erable net)or1in/ effects are re;&ire before it can be implemente 2 In the lon/ term, bloc1chain can si/nificantl! improve tax compliance b! /&aranteein/ real-time, a&tomate tax pa!ments from the tax pa!er to the state b& /et at the time)hen a transaction in bein/ exec&te 2 This is achieve b! &se of 6mart Contracts, pieces of co

the Fcorporate veilD obstr&cts rea ! access of la) a&thorities to the informa re/ar in/ &ltimate beneficial o)nership of those le/al vehicles an creates con itions)here in ivi &als can shiel their assets from the tax officials, incl& in/ procee s of crime, s&ch as briber! an corr&ptions2 'vailabilit! of acc&rate verifiable information on transparent bloc1chain-base istrib&te atabase re/ar in/ the o)nership str&ct&re, incl& in/ i entification of &ltimate beneficial o)ner can assist la) enforcement a/encies an tax a ministrations in i entif!in/ those persons responsible for the activit! of concern, or)ho ma! have relevant information to f&rther an investi/ation2

M&ltinationals transactin/)ithin themselves &sin/ bloc1chain an thereb! allo)in/ real-time /eneration of local files for a& it revie), ma! be rel!in/ on the bloc1chain-base applications to tar/et an intrinsic problem of the transfer pricin/5 @ lac1 of information abo&t comparable transaction bet)een &nrelate parties necessar! to etermine the transfer price2

(in1e to the s&ppl!-chain mana/ement, the bloc1chain-base applications can be f&rther exten e for the &se of C&stoms an Excise2 The latter a&thorities benefit from bloc1chain in t)o main respects3 the abilit! to rel! on the provenance of the /oo s transporte an ease of sharin/ the c&

6elf-exec&tin**/** contracts are creatin**/** **)**a**!**s for companies to ope a&tomaticall**!**2

.ecentrali<e a&tonomo&s or**/**ani<ations **$.'**Os%**,** b&n le smart contracts that are a&tomaticall**!** enforce an exec&te thro&**/**h bloc**1**chains**,** co&l provi e a more a&tonomo&s or**/**ani<ation2

In the lon**/**-r&n**,** bloc**1**chain technolo**/!**Ds most profo&n impact co&l be its impact on social val&es**,** social an corporate interaction2 It is &p to taxpa**!**ers**,** tax a ministrators an a visors to &n erstan this technolo**/!** an **/**rasp the implications as it evolves2

3. **+0**a**'!**les o& real**4**li&e a**!!**lications o& blockchain**4**based solutions to date

-wedish lan re**/**istr**!, (**an m**G**teriet**,** is testin**/** private bloc**1**chain to re**/**ister lan an properties[7]2 The a&thorit**!** believes that technolo**/!** enables relt t c t**50.7579(**t**)11.93**

transactions[11][2] The Monetar! '&thorit! of -inga!ore $M'6% is evelo bloc1chain-bac1e settlement s!stem that aims to streamline cross-bor er settlement transactions bet)een the ban1s[12][2] Other evelopments in financial sphere incl& e the 6antia/o 6toc1 Exchan/e in hile Fincorporate a bloc1chain-base sec&rities len in/ sol&tions[21][C]

6hippin/ /iant .aesrk in collaboration)ith I+M[1E] are evelopin/ the bloc1chain-base sol&tion for su!!ly4chain 'anage'ent an oc&mentation exchan/e bet)een shippers, frei/ht for)ar ers, ocean carriers, ports an c&stoms a&thorities[2] 6imilar pro:ects are bein/ pilote b!

Blockchain 101 for Governments

#iii$ -electi*e endorse ' ent o*er !roo& o& work

Consens&s in a bloc1chain for b&siness is not achieve thro&/h minin/ b&t thro&/h a process calle =selective en orsement2> It is abo&t bein/ able to control exactl!)ho verifies transactions, m&ch in the same)a! that b&siness happens to a!2 If one transfers mone! to a thir part!, then one0s ban1, the recipient0s ban1 an possibl! a pa!ments provi er)o&l verif! the transaction2 This is ifferent from +itcoin,)here the)hole net)or1 has to)or1 to verif! transactions2

9.)i&&erence between Bitcoin and +thereu '

+itcoin is a platform for ecentrali<e c&rrenc!)hile Ethere&m is a platform for ecentrali<e c&rrenc! an importantl!,en/ine for applications)hich can be r&n)itho&t a nee of tr&ste thir part! $some central server%2

1:. What is a s ' art contract?

6mart contract Mis a piece of co e)hich is store in the bloc1chain net)or1 $on each participant atabase%2 It efines the con itions on)hich all parties &sin/ contract a/rees an certain actions escribe in the contract can be exec&te if the re;&ire con itions are met2

's the smart contract is store on ever! comp&ter in the net)or1, the! all m&st exec&te it an /et to the same res&lt2 This)a! &sers can be s&re, that o&tcome is correct2

11. How does a blockchain transaction actually work?

' t!pical bloc1chain transaction)or1s broa l! as follo)s3

12 Transaction initiation3 One part! $the sen er% creates a transaction an transmits it to the net)or12 The transaction messa/e incl& es etails of the receiver0s p&blic a ress, the val&e of the transaction, an a cr!pto/raphic i/ital si/nat&re that proves the a&thenticit! of the transaction2

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basics-intro-bl&emix-trsBin ex2html $iv% https3BB)))2ibm2comB eveloper)or1sBclo&Blibrar!Bcl-
bloc1chain-basics-intro-bl&emix-trsBin ex2html $v%
https3BB)))2ibm2comBblo/sBbloc1chainB2017B04Bthe- ifference-bet)een-bitcoin-an -bloc1chain-
for-b&sinessB