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**Ibe nke 3****Abstract**

Choice Coin bụ akụ ịtụ vootu agbahapụla na Algorand blockchain. Ebumnuche nke Nhọrọ Mkpuru ego bụ ikwado nsonye onye kwuo uche ya na ịtụ vootu na-enweghị isi. Mbụ, akwụkwọ ọcha a na-atụle nkwekọ nke Choice Coin na Algogeneous Smart Contracts, nke jikötara ọgụgu isi na-arụ օրụ iji kwado inye na ikesa ụgwọ օրụ. Na-esote, Choice Coin akụ bụ kowaputara, gụnyere koodu ngwanro, infusions ọgụgu isi, na nnabata mgbakọ. N'ikpeazụ, a na-enye usoro maka ochichị kwụrụ onwe ya na Choice Coin iji kwụo ụgwọ ndị sonyere, echekwabara softuwia maka ịtụ vootu, ma mebie mkpebi.

**Ibe nke 4**

## Okwu mmalite

Choice Coin bụ akụ dijitalu, nke a na-eji dozie nsogbu nchikwa ọchichị. Nke nsogbu ọchichị gbasasirị agbasa na-ezo aka n'usoro mgbagwoju anya nke a na-eji ekenye ihe onwunwe n'ofe netwòk ndị gbasasirị. N'ikwu ya n'uzo ọzọ, nsogbu ọchichị na-achị achị na-ezo aka enweghi usoro iji kwado mkpebi kwụṣụrụ onwe ya n'uzo ekesa iji akụ dijitalu. Choice Coin na-edozi nsogbu ọchichị anaghị achị site n'inye a usoro maka itu vootu echedoror site na iji post-quantum cryptography. Ihe ngosi itu vootu maka kwụṣụrụ onwe ya otu, Choice Coin ka ewuru na Algorand blockchain ka ihe Algorand Standard Asset.<sup>1</sup>

Akwukwọ ọcha a na-agu n'ihi na akụkụ ato. Akụkụ nke Mbụ na-atụle assimilations nke Choice Coin na Algogeneous Smart Contracts, nke na-ejikota ọgugu isi aka iji kwado ọkọnọ na kesaa ụgwọ ọrụ. Akụkụ II na-akowaputa akụ nke Choice Coin, gunyere koodu ngwanrọ, ọgugu isi infusions, na nrube isi nke mgbakọ na mwepụ. Akụkụ III na-enye usoro maka ọchichị kwụṣụrụ onwe ya na Choice Coin iji kwụo ndị sonyere ya ụgwọ, softwia echedoror, na mebie mkpebi.

<sup>1</sup> Yossi Gilad, et al., Algorand: Agreement Byzantine Scaling maka Cryptocurrencies, 53 (2017).

## I. Algogeneous Assimilation

Choice Coin na-eje ozi dí ka ọkpükpu azụ na corpus dí egwu maka nkwekorita smart Algogeneous ngwa, mmepe na mbufe. Usoro nke Algogeneous smart contracts ikwaga Choice Coin na Algorand Network, Algogeneous Assimilation, na-enye ohere maka azumahịa,

Mgbakwunye ɔkɔnɔ na-ekesa usoro, yana usoro ugwo ɔru iji kpalie nke ɔma nsongye. Netwɔk Algorand na-eji ezi uche blockchain ɔkɔlɔtɔ. <sup>2</sup>

$$(1) \quad \begin{aligned} &= F1, , ( , ) - \dots \\ &= F2, , , ( - ) \\ &m = F3, m , , ( - ) \\ &m = F, m , a , ( a ) - \dots \end{aligned}$$

Algorand nwere ngɔnqo, na nha nha (1) ihe mgbochi ahu gunyere ʌkpurụ hash sitere na nke gara aga ngɔnqo, ( a ), a quantity a , na a na-agafe gburugburu m - na-akowaputa metrik azumahia.

$$(2) \quad \ddot{u} = , WWWW , WWWW.., m$$

Nhazi (2) na-egosi ngɔnqo m WWWWW egosiputara ike na Algorand blockchain  $\ddot{u}$  .

$$(3) \quad \begin{aligned} \rangle &= F1, , , ( - ) \\ \ddot{u} \rangle &= . \dots \\ m \rangle &= F1, m , a , ( a ) \end{aligned}$$

Na nha nha (3) a na-agbasa mgbagha ahu site na ngɔnqo mmalite gaa na ngɔnqo aka ike. Na nkenke, Nhɔrɔ Coin na-eji smart contracts jikötara na ngɔnqo maka ịnye na Algorand Network.

## A. Mgbakɔ nkwekorita

Nkwekorita smart bu mmemme na-eme ngwa ngwa, na-ebufe cryptocurrency n'etiti oriri. <sup>3</sup> N'ikwu ya n'uzo ɔzø, a na-eme nkwekorita smart smart na blockchain iji nyefee akù na-enweghi usoro nlekota ɔ bụla. <sup>4</sup> Algorand smart contracts (ASCs) na-enye ohere maka mbufe zuru ụwa ɔnụ, na nhazi ngwa ngwa yana naanị ugwo obere obere - na-abukarị ihe na-erughị \$0.01 na mkpokota uru. Dị ka A na-akowakarị, e nwere ụdị ASC ato: (1) nkwekorita smart steeti; (2) amamihe na-enweghi obodo nkwekorita; na (3) Algogeneous smart contracts.

Nkwekorita smart nke steeti bu ntuziaka nchekwa maka blockchain. Stateful na-ezo aka na ikike nkwekorita ichekwa ozi na steeti akowaputara na netwɔk. Dika ɔmụmaatụ, otu ụdị Nkwekorita smart stateful bu ɔru ịkwụ ugwo arriqo, na-enye onye ɔru ohere ịriqo ugwo site na

<sup>2</sup>Jing Chen, Silvio Micali, Algorand 13 (2017), arXiv:1607.01341.

<sup>3</sup>Fabrice Benhamouda, et al., Na-akwado Data nkeonwe na Hyperledger Fabric na Mgbakɔ Multiparty echeekwara, IBM Journal of Research and Development (April 2019), DOI: 10.1147/JRD.2019.2913621.

<sup>4</sup>Massimo Bartoletti, Ihe nlere anya nke Algorand smart contracts, 1 (2021), <https://arxiv.org/abs/2009.12140v3>.

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## Ibe nke 6

onye ɔru ɔzø. N'ozuzu, smart smart contracts bu mmemme ezi uche na-echekwa data na blockchain.

Nkwekorita Smart na-enweghi obodo dí iche na ha na-akwado azumahia n'etiti ndí ɔzø, dí ka nbibi akauntu na ihe ndí ɔzø dí ka nkwekorita n'echiche azumahia. Nkwekorita smart na-enweghi steeti na Algorand Network na-arükwa ɔru dí ka ndí nnöchị anya mbinye aka <sup>5</sup> bjanyere aka na azumahia, si otu a na-akwado ha isi blockchain netwɔk. N'iji atụnyere, otutu na-akowa nkwekorita smart na-enweghi obodo dí ka nke bu isi dakötara na escrow ɔru. <sup>6</sup> N'ezie, ebunnuche imewe dí mkpa maka nkwekorita smart na-enweghi steeti bu ịkwado ma ɔ bu ju azumahia blockchain. <sup>7</sup>

Na-anochianya njiko aka teknuzu nke nkwekorita smart enweghi steeti na steeti, Algogeneous smart contracts na-agunye mwékota ögünu na ögünu isi.<sup>8</sup> Ebe gara aga ASC ga-aburiri steeti ma o bụ enweghi obodo, nkwekorita Algogeneous nwere ike jbu nke steeti, enweghi steeti, ma o bụ abu.

$$(4) \quad \ll = 0 \oplus 1$$

$$(5) \quad \ll = 0 \otimes 1$$

Nhazi (4) na-akowa nkwekorita smart na-enweghi steeti, nke nwere ike jbu Boolean. Nhazi (5) na-akowa a Algogeneous smart nkwekorita, nke kama na-aru ɔru na-agunye ma o bụ ɔru.

$$(6) \quad \ll \rightarrow$$

Nhazi (6) na-akowa ɔru mgbanwe maka nkwekorita smart Algogeneous na Algorand Netwok.

Nkwekorita Algogeneous na-eji ögünu isi agbakwunyere, ụdị AI maka nyocha nkwekorita.<sup>9</sup> Ndị AI na-enyoche iji hụ na nkwekorita smart teknuzu bara uru dika nkwekorita ọdịnala si dị ụkpuru na ndị ɔzqo echekwara.

$$(7) \quad \Sigma^m = 32$$

Nha nhata (7), AI Equation, na-akowaputa nhazi usoro nha nha dī ka ntuziaka sitere n'aka onye agbakwunyere. Onye nnöchianya agbakwunyere na-ahazi ihe ɔmuma maka nkwekorita nyocha - na-eme ka nkwekorita ahụ kwenye n'uzo ezi uche dī na ya na azumahia.

<sup>5</sup>Jing Chen, Silvio Micali, Algorand 8 (2017), arXiv:1607.01341.

<sup>6</sup>Escrow bụ nkwekorita nkwekorita nke onye ɔzqo na-anata ma nyefee ego ma o bụ ihe onwunwe maka ya ndị ɔzqo na-emekorita ihe.

<sup>7</sup>Silvio Micali, Nkwekorita smart nke oma na ɔnu ögünu: Nkwekorita Teal Stateful Algorand 1 (2020).

<sup>8</sup>Archie Chaudhury na Brian Haney, Smart Contracts na Algorand, SSRN 3887719 (2021).

<sup>9</sup>Archie Chaudhury na Brian Haney, Smart Contracts na Algorand (2021).

## Ihe nke 7

Nkwekorita smart algogeneous na-enye ohere ka ejikota ɔtutu ɔru nke ɔma n'ime otu aru ɔru, niile na Algorand Blockchain. Na nkenke, nkwekorita smart Algogeneous bù amamihe nkwekorita nke na-enweta ɔru nke ma a enweghi steeti na steeti smart contracts na a Sistem otu, yana njiri mara ögünu isi agbakwunyere na njirimara nkwenye. Algogeneous architecture ele contracts n'ime nke o bụla ngongò dī ka mejuputara anō dī mkpa ihe, validating nkwekorita iwu na ezi uche.

$$(8) \quad f_{\cdot, J}^m \rangle. \quad \dots \quad _m f_{\cdot, J}$$

Ihe mmewere o bụla nwere ike igunye ihe mgbakwunye ma dī iche iche dabere n'udị. Dī ka e gosiri na nha nha (8), ihe anō bụ isi maka Algogeneous Smart Contract m bụ: kwuputara jru ɔru, aruru ɔru enweghi steeti, ögünu isi mmadu, na ihe ɔmuma agbakwunyere .

The Choice Coin akan owo bu fundamentally assimilated na Algorand smart nkwekorita, ka n'ye Choice Coin, nchekwa na ijkwa erekonu ha network Algorand.

## B. Nnweta na-adịgide adịgide

Choice Coin bụ akara ntuli aka nke nwere ike ijkwado otu ndị kwụrụ onwe ya ma rụo ọru dí ka isi nsonye nsonye maka ma ụlo ọru etiti yana ndị gbasasịri. N'ihi ya, Choice Coin bụ ahaziri iji hụ na erekonu nwere njedebe, nke ga-adịkwa ukwuu karja mkpokta mgbasa ozi ya. Nhọrō Coin erekonu metrics na-egosipata atumatu nwere ike igbatị iji hụ na akụ ahụ nwere ike iji ya mee ihe ikpe, mgbe i na-echebe mgbanwe ọnụahịa site na ntule ahịa. Ihe dí mkpa maka ọru niile bụ nchekwa maka ma Choice Coin na usoro nkwekorita smart dí iche iche nke nwere ike inye a ga-achịkwa na gbanwee dí ka ndị ahịa chọrọ.

Ngukọta oke oke maka Choice Coin bụ 1,000,000,000.00. Ka oge na-agaa, a ga-ahapụ nhọrō iji kesaa n'ime ihe na-ekesa. Akowaputara erekonu na-ekesa site na mmasị mgbanwe na kwado Choice Coin Network ma tanye uru na obodo.

$$(9) \quad * = \max F, \dots, m(0)$$

Nhazi (9) na-akowwa usoro nkesa izugbe maka ijkwalite erekonu ikesa.

Choice Coin nwere ike inwe nnukwu ikpe ejii eme ihe, ebe ọ na-echebe mbelata ọnụahịa site na ntule ahịa. Dị ka nke a, Choice Coin nwere ike chikọta ọnụ na silos dí iche iche, maka ịzụrụ na ngwa ngwa mmepe. Uzọ nchekwa siled na-akwado nkesa echekwara echekwabara na enweghi isi maka ebumnuche dí iche iche.

## Onyonyo 1

Ọgụgụ 1 bụ ihe atụ na-egosi ọrụ onye njikwa dị ka onye na-agbakọ n'etiti mkpuru ego Nhọqo  
akaṇtu onye okike na ọtụtụ silos. Na mgbakwunye na ọtụtụ silos nchekwa, Choice Coin ga-abukwa  
ekesara na Algorand Network na obodo ntanetiChoice Coin maka otutu  
ebumnobi, gụnyere ikwado usoro gburugburu ebe obibi agbasasighi.

**C. Nkesa agbasaghi**

Otu ihe dị mkpa maka ime ka ego mba ụwa n'usoro ọchichị onye kwuo uche ya maka akụ na ụba na-enweghị oke bụ ihe mkpali.  
Ihe mkpali na-enye ohere maka ikesa akụ na ụba, akụrụngwa, na akụ n'ofe netwok blockchain.  
Algorand na-ekewa onwe ya na blockchains akaebe nke ọrụ, dị ka Bitcoin na Ethereum, site na  
na-ekesa Algo na netwoku ya niile site na iji teknuzu na-egosi na ọ dì ọcha, kama ịbü naani  
nye ndị na-egwuputa ihe nwere akụrụngwa komputa dị oke ọnu. Ozokwa, Algorand na-enweta ụgwo ọrụ onye nruputa  
ma nyekwa mmemme iji hu na nkesa Algo ziri ezi. Na ime nke a, Algorand dị anya  
n'onwe ya site na blockchains ndị ọzo site na ike nke oke akụrụngwa.

Mmemme agbasasighi agbasa na-akpali ikere öke na iwulite netwoku site na nyocha,  
mmepe, na ihe okike ọgụgu isi, na-aga n'ihu na-eme ka onye ọkachamara, ụkpuru omume, na  
omenala collegial n'ime Algorand Network. Choice Coin ga-eso nzogukwu Algorand.  
na-elekwasi anya na mkpali na nyocha, mmepe na mmepe ngwanro mepere emepe. Ya mere,  
Choice Coin ga-elekwasi anya na atumatun nkesa bụ isi n'icheputa, ide ihe na  
mmemme. Ozokwa, atumatun nke abuo n'ime obodo Choice Coin ga-adjn'etiti  
gburugburu ọrụ ebere, nnabata, na ahja.

**Ihe nke 9**

A ga-enwe isi ụzo abuo a ga-esi kesaa nsonye na ihe mkpali.

Nke mbu ga-abu nkesa akwukwo ntuziaka, nke ga-agunye nnyefe ozugbo site na akaṇtu njikwa gaa na  
akaṇtu onye so na ya. Nke abuo bụ kwuluru onwe nyefe, ebe a smart nkwekorita na-akpaghi aka  
na-ebufe Choice Coin na onye so na ya. Dị ka Choice Coin akpirikpa, enwere ike igunye nnwere onwe karja  
na usoro nkesa iji kwalite arumoru.

Otu ihe dị mkpa maka Choice Coin na-akwalite obodo na-agbanwe agbanwe n'ofe ụwa  
gburugburu ebe obibi gbasasiri. Dị ka ndị dì otu ahu, öke obodo Choice Coin nwere ike ime site na  
ogbako dì iche iche na ebe intanetig gụnyere Discord, GitHub, Twitter, na Algorand  
Netwok. Imeputa ụkpuru omume na obodo obodo iji kwalite okwu onye kwuo uche ya na  
Mkparita ụka nkwenye, Choice Coin ga-enye ọgbo ọhuru ike n'igbako ụwa ọnu  
ochicho onye kwuo uche ya.

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**Ibe nke 10**

## II. Nrüp̄uta akurungwa

Nhazi akurungwa Choice Coin na-achikq̄ta njirimara isi okwu ato. Nke mbu, Choice Coin na-ejik̄o nkwekqr̄ta smart Algogeneous na Algorand Blockchain. Nke abu, Choice Coin na-eji öguḡu isi aru ɔru maka īkwalite ɔchichq̄ onye ɔru. Nke ato, Choice Coin na-ahazi ya nnabata n'ime usoro ngwanrq̄ ya.

### Onyonyo 2

Öguḡu 2 na-egosip̄uta njirimara isi okwute mkp̄uru ego Choice. Ewubere ngwanrq̄ Choice Coin ozugbo na Algorand Blockchain ma nwee ike imekqr̄ta ya na ngwaike mgbak̄ na mwep̄u. Na mgbakwunye, Choice Coin na-eji tekñuzu öguḡu isi aru ɔru maka nchekwa yana iji kwado ya azumahja.

## A. Ngwa Ngwa

Algorand Standard Asset (ASA) bu ihe akaebe dijitalu, nke enwere ike itinye akara ka ọ nochite anya ya uru. Choice Coin bu ASA ọhụrụ emebere maka ọchichị yana igba ume okè onye kwuo uche ya. Uđi mgbakọ na mwepụ na nchekwa nhazi maka ASA sitere cryptographic hashing.<sup>10</sup>

$$(10) \quad (*) : \{0:1\} \rightarrow \{0:1\}$$

Nha nhata (10) bu ọrụ hash na-enweghi usoro nwere mbinye aka dijitalu. Ulọ ọrụ ASA gụnyere uko ọnwe nchekwa zuru ezu. Dịka ọmụmaatụ, Equation (11) na-anochite anya ụdị nchekwa site na echiche nke onye iro.

<sup>10</sup>Jing Chen, Silvio Micali, Algorand 26 (2017), arXiv:1607.01341.

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## Ibe nke 11

$$(11) \quad F, - < F, - < F, -$$

N'agbanyeghi nke ahụ, onye na-awakpo obi ọjọq,  $\oplus$ , enweghi ike ịgbanye ndị ọrụ ọhụrụ na sistemụ ahụ ma enweghi ike. mebie netwokụ.<sup>11</sup>

Choice Coin bu akụ dijitalu maka ịtụ vootu ma lekwasịri anya dị ka ihe ngwota nye ndị na-agbasasighị nsogbu ọchichị. N'ikwu ya n'uzo ọzọ, Choice Coin na-enye usoro nke ndị otu na ulọ ọrụ nwere ike ịtụ vootu n'enweghi nsogbu site na iji sistemụ ngwanro na netwokụ Algorand. Kpomkwem, ọ na-enye ngwá ọrụ ịtụ vootu maka mkpebi ndị a na-ekewaghị ekewa.

Onyonyo 3

Ọgugụ 3 na-egosi mmekorja na ngwa maka Choice Coin dị ka igwe nke a na-eme nchikota ndorọ ndorọ ọchichị na mkpebi ulọ ọrụ. Ihe ngosi ịtụ vootu maka ike kwụrụ onwe ya ötù, Choice mkpụrụ ego na-eje ozi dị ka isi okè token maka ma centralized na

ötù ndị gbasapurụ agbagọ.

N'ihi ya, a na-ahazi Choice Coin iji hụ na ọ nwere oke ọkọnọ, nke ga-adịkwa ukwuu karịa ya ngükọta ikesa ọkọnọ.

$$(12) \quad (*) : \{0:1\} \rightarrow \{0:1\}$$

Nhazi (12) na-egosi ndotị cryptographic maka hash site na iji SHA-512 algoridim. Nke Choice Coin cryptographic metrics na-egosiputa atumatu nwere ike igbatị iji hu na nchekwa gachara iji SHA-512 hashing. Ngwa nke SHA-512 algoridim enwere ike inye ọnụ ọgugụ

<sup>11</sup> Jing Chen, Silvio Micali, Algorand 27 (2017), arXiv:1607.01341.

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## Ibe nke 12

Ọganihu na kómpuṭa oge gboo ụlọ ọrụ yana teknuzu mgbako quantum ọhụrụ, na-eme ka ọ nwee ike ịmepuṭa usoro ntuli aka nwere nchekwa nke quantum.

ASA gunyere ihe nchekwa dì n'ime ya na njirimara ojiji dì ka isi akụ Algorand, Algo.<sup>12</sup> Ozokwa, ASA na-enyere ndị ọrụ aka ịmepuṭa token nwere ọrụ pürü iche gunyere njikwa jikwaa, ihichapụ akụ na ụba na mgbagha azumahịa.<sup>13</sup> Site na ụlọ ịba uru dì, Choice Coin's Emepuṭara ihe ùgwù irube isi na díka ụkpuru maka ụkpuru omume kacha elu siri dì, Nchekwa softwia kacha mma, yana nrube isi n'usoro iwu. Ukpuru ndị a gunyere ụkpuru nke kacha nta ihe ùgwù, ebe netwòk kere amachi oke nke onwe ha ike a opekempe iji chekwaa iguzosi ike n'ezi ihe nke gburugburu ebe obibi dijitalụ.

Kpomkwem, clawback na ifriizi ihe ùgwù na-ahụ maka nchekwa, a ga-eji ya mee ihe naanị n'ime omume nke ndị sonyere obi ọjọ na-eme ihe megidere iwu ma ọ bụ ụkpuru mba ụwa nke ịdị mma. Nke mbụ, ọrụ ifriizi ihe bara uru na-enye ohere ka adreesị nnabata ahụ mebie akụ ndị ahụ adreesị ọzọ. Nke a dì mkpa maka nchekwa n'ihi na ọ na-echebe megide iji obi ọjọ eme ihe ikpe. Nke abụ, clawback bụ usoro nnabata a na-ahụkarị blockchains, na-enye ohere ịnyefe ntughari iji hụ na ejighị akụ maka ebunnuche mpụ. Adreesị nnabata nke Choice Coin bụ ekewapuru kpomkwem n'ofe netwòk nke ndị na-elekọta ndị ga-erute nkwenye n'ihu na-amalite mgbagha.<sup>14</sup>

Ihe dì mkpa na ọrụ niile bụ nchekwa maka ma Choice Coin na nkwekorịta smart dì iche ihe Usoro nke enwere ike ibunye silos Choice Coin.

## Onyonyo 4

<sup>12</sup> Na mgbakwunye, ASA nwere ike jbu fungible ma ọ bụ na-enweghi fungible nwere ogo njikwa dị iche iche.

<sup>13</sup> Silvio Micali, Nkwekorita smart nke ọma na ọnụ ọgụ: Nkwekorita Teal steti Algorand, 6 (2020).

<sup>14</sup> Musab Alturki, et al., N'ebe ihe nlere anya nke ükpuru Algorand Consensus Protocol na Coq, arXiv: 1907.05523 (2019).

**Ibe nke 13**

Ọgụ 4 na-egosiputa usoro nchekwa nchekwa mkpuru ego Choice, na-enye ohere maka mgbagha azumahịa yana ifriizi ihe onwunwe. Ma clawback na ifriizi na-enye ohere ka akaṇtu nnabata ahụ nwee njikwa ma ọ bụrụ dị mkpa iji rụq ọrụ iwu, dị ka ifriizi akụ nke na-abia n'okpuru njikwa a ọtù mpu. Yabu, akurungwa ndị a na-enye ohere maka ịrụ ọrụ nke na-enyere aka idobe ükpuru omume ọchichị, ojiji, na nyefe. Ya mere, Choice Coin na-ebutu ụzọ ma decentralization na nche.

**B. ọgụ isi nke Quantum**

N'ogbakọ teknuzu nke ngwanro na ngwaike ọhụrụ, ọgụ isi nke quantum bụ Sistemu na-eme ka ọ bụrụ oge ozi ọhụrụ. Na-adabere na isi ihe nke eziokwu, Komputa quantum na-eji eletron na ụmụ irighiri ihe ndị ọzọ dị ka ion na photon iji ịrụ mgbakọ. Komputa <sup>15</sup> Quantum dị iche na sistemụ komputa gara aga n'ihi ụzọ ha si ahazi ozi. <sup>16</sup> Ebe komputa oge gboo na-ahazi ozi na ibe n'ibe, nke bụ ihe nnöchianya Boolean ma ọ bụ ọnụogu abụo, komputa quantum na-ahazi ozi ya na qubits na-anochi anya ozi na oghere vector dị mgbagwoju anya.

A tylere okwu ọgụ isi artificial (AI) n'ihe gbasara blockchain na ogologo oge site n'aka ndị ọkà mmata dị iche ihe na ndị isi ụlo ọrụ. Dịka ọmụmaatụ Gary Gensler - onye isi United States State Securities and Exchange Commission, dere akwukwọ dị mkpa na confluence nke miri emi mmata na ego kwusie ike. <sup>17</sup> Na mgbakwunye, edemeđe mbụ na-akowa ọgụ isi igwe rụru ụka, ọgụ isi "na-atụta ikike onye nnöchi anya iji nweta ebunnuche n'otụtụ dị iche ihe gburugburu." <sup>18</sup> N'ozuzu, AI na-ezo aka na igwe ọ bụla nwere ike ịmata, icheta na ime ihe. Maka mmekorita igwe mmadụ, ọ na-esote na AI na-ejikarị eme ihe dị ka ngwá ọrụ iji nyere aka ụmụ mmadụ na ihe mgbaru ọsọ gbakwasara ụlọ ọrụ ngwa na ihe omume. Nkwekorita nke quantum Mgbakọ na AI, ọgụ isi nke quantum dị n'etiti imewe Choice Coin.

Akụkụ dị mkpa maka koodu mkpuru ego Choice na ọgụ isi bụ ihe agbawunyere ihe ọmụma, a ọgụ isi mmadụ ahazigharịri n'udị mgbakọ. Enwere ike ịhazi ihe ọmụma agbawunyere na koodu ngwanro maka otutu sistemụ n'ime usoro Choice Coin, dị ka nchekwa, nkwado, na nnabata.

$$(13) \quad (\Sigma_m) = 32$$

A kowaputara ụdị ihe ọmụma n'ozuzu nke agbawunyere ( $\Sigma_m$ ) na nha (13) ma na-enye ohere maka a Ntule gbakwasara ihe n'ozuzu ya site na iji metrik dị mma. Ihe ọmụma agbawunyere

<sup>15</sup> Vikas Hassija, et. al., Odida obodo dị ugbu a nke komputa quantum, IET Quantum Communication, Vol. 1 Iss. 2 (2020). Hụ kwa Alejandro Perdomo, et. al., Ọmụma ihe nleba anya heuristic maka mgbakọ ọnụ ọgụ adiabatic 2 (2010).

<sup>16</sup> Gerüting, N., On Ongu, L., Kama nnewi makanasobi Entscheidung, 220, 289 (1936) 23132, na 32 (November 1, 2020).

<sup>18</sup> Shane Legg, Marcus Hutter, oğugu isi zuru ụwa ọnụ: Nkowa nke oğugu isi igwe (2007).

## Ibe nke 14

leverages a arø na n'usoro n'usoro, nke bụ mgbanwe maka niche mkpa, ma si otú dñu maka ngwa ebumnuche izugbe.

Na mgbakwunye na usoro ihe ọmụma agbakwunyere, enwere ike itinye mmüta igwe quantum n'ime gburugburu ebe obibi Choice Coin maka ebumnuche dì iche iche. Netwök neural quantum (QNN) bụ a usoro maka izugbe ime amụma site na jji quantum logic ma ọ bụ ngwaike quantum. <sup>19</sup> Maapu QNN dì iche na ngwaike quantum dì iche iche dabere na mkpuru anụ ahụ. Maka imaatu, enwere ike were eserese Chimera were maapu QNN ka ọ bürü mkpokota ọnụ oğugu adiabatic ijie. <sup>20</sup>

QNN ọ bula nwere ihe ntinye ntinye na oyi akwa mmepüta; na a na-akowa omimi nke ihe nlereanya site na ọnụogugu nke n'igwé n'etiti ntinye na mmepüta oyi akwa. <sup>21</sup> Igwe akwara ọ bula zoro ezo na-arụ ọrụ dika njirimara onye na-ewepüta ihe site n'inye nyocha maka njirimara mgbagwoju anya. <sup>22</sup>

$$(14) \quad \begin{array}{ccccc} \rightarrow & \rightarrow & \oplus & \oplus \\ \rightarrow & \rightarrow & \rightarrow_m : & \oplus & \oplus \oplus \\ \rightarrow & \rightarrow & & \oplus & \oplus \end{array}$$

$$(15) \quad \begin{array}{ccccc} \rightarrow & \rightarrow & \oplus & \oplus \\ \rightarrow & \rightarrow & \rightarrow_m : & \oplus & \oplus \oplus \\ \rightarrow & \rightarrow & & \oplus & \oplus \end{array}$$

Ngükota (14) na nha nha (15) na-akowa usoro maka netwökü akwara otu na ha. ụdị mpüta quantum dì iche iche.

$$(16) \quad [ ( , ), ( , ), ( , ) ]$$

Amụma ọ bula na-esi na netwökü akwara ozi nwere ike jikota ya na quantum ọrụ oğugu isi dì ka egosiri na nha nha (16).

$$(17) \quad \left\{ \begin{array}{l} \rightarrow \rangle \langle \\ \rightarrow \rangle \langle \\ \rightarrow \rangle \langle \end{array} \right.$$

$$(18) \quad * = m$$

<sup>19</sup> EUGENE C HARNIAK, M NKE NKE D EEP L EARNING , MIT P RESS 8-9 (2018).

<sup>20</sup> Luca Asproni, et al., Izi ezi na obere ntinye na ire ere subqubo nwere nnukwu njikø zuru oke. nsogbu: ihe ọmụmu gbasara nsogbu nkewa nömba, Quantum Machine Intelligence (2020).

<sup>21</sup> JOHN D. K ELLEHER , B RENDEN TIERNEY, D ATA S CIENCE , MIT P RESS 134 (2018).

<sup>22</sup> SEBASTIAN R ASCHKA , V AHID M IRJALILI, P YTHON M ACHINE L ikpata 18 (2017).

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**Ibe nke 15**

Nhazi (17) na-enye ụdị ọrụ ato n'ozuzu ya, , . Nha nhata (18) singularizes kacha mma quantum ọgụgụ isi \* na-ezo aka na ọrụ ato.

### C. Nkwenyenye nnabata

Nrube isi bụ usoro siri ike nke ndị mmadụ na ndị otu na-agbaso iwu. Nhọq Coin ahaziri mmemmene nnabata cryptocurrency ya site na usoro mgbakọ na mwepụ ka gbo mkpa ya kpomkwem na ụlọ ọrụ blockchain. N'ezie, ezi uche agbakwunyere usoro maka etinyere nrubeisi n'ime koodu isi mmalite mkpuru ego Choice. Dị ka ihe atụ, ihe onwunwe ifriizi na Onye njikwa nrubeisi na-achikwa ọrụ mbufe clawback N'ime gburugburu ebe obibi Choice Coin nke na-arụ ọrụ na Algorand Blockchain.

Usoro nke Choice Coin ji akwado nnabata nwere akukụ ato. Nke mbụ, a chikötara corpus site na iwu ndị dí mkpa. Nke abụo, algorithm kacha mma na-ahazi data n'akukụ onye njikwa nnabata iji hụ na nnabata. Nke ato, a na-emelite corpus na-agu n'ihi dika mgbanwe dí na mpaghara iwu na usoro iwu, yana mgbanwe na koodu ngwanro. Nrube isi bụ isi maka Choice Coin, dí ka ọ na-etolite omenala ụkpuru na gburugburu ebe obibi ya n'intanetị yana ijhụ na ndị sonyere Choice Coin na-agbaso usoro nnabata akowaputara nke ọma. <sup>23</sup>

Ihe odide ederede nwere ihe anọ: (1) iwu ikpe , (2) iwu iwu , (3) ederede iwu , na (4) isi mmalite nke abụo .

$$(19) \quad = [ , , ]$$

Equation (19) na-akowa corpus dí ka nhazi nwere ihe anọ. Isi corporal abụo ihe ndị bụ iwu ikpe United States na iwu iwu. Ihe abụo a na-agbakota na jikötara ya na ọtụtụ isi mmalite nke abụo yana jikötara ya na ederede nchikwa maka kpomkwem ụlọ ọrụ.

Iji nwēe ihe iga nke ọma n'ikwalite nnabata - ọ dí mkpa iji tọq arumorụ dika atumatụ akowaputara, enwere ike tọq ya na ebumnobi ya. Nrube isi na ngalaba iwu na ụkpuru niile enwere ike imegharị ya dika nhazi maka ịdị mma. Iwu gbara gburugburu cryptocurrencies bụ mba ewezuga. Ụzọ gbadoro ụkwụ na ihe maka nnabata na-amata iwu dí adị akurungwa na-elekwasịanya karisja n'ikunye nrubeisi kacha mma na usoro nhazi nhazi.

Nzogukwu mbụ bụ iji ụzọ gbakwasara ihe n'ighọta corpus ederede. Nhata (20) na-atụ ihe nke ọ bụla n'usoro corporal.

$$(20) \quad \begin{matrix} & m \\ = 2 & \end{matrix} \quad \begin{matrix} & m \\ : = 2 & \end{matrix} \quad \begin{matrix} & m \\ : = 2 & \end{matrix} \quad \begin{matrix} & m \\ : = 2 & \end{matrix}$$

Nhazi (21) na-etinye ọgụgụ isi aka na nhazi ahụ.

<sup>23</sup> Veronica Root, ụkpuru omume bara uru karịa, U. C H . L. R EV . Online, 21 (2019).

**Ibe nke 16**

$$(21) \quad [ , , ]$$

Nha nhata (22) na-egosiputa ɔru maka di ka ɔru kachasi, nke kwekoror  
iji kwalite ükpuru nnabata nyere syntactic corpus.

$$(22) \quad * = 2^m$$

Qzokwa, na ihe omume үfodü ihe nwere ike weere di ka ihe di mkpa, mgbe ahü a arö  
enwere ike jnawere үdi mgbakö na mwepü.

$$(23) \quad = [\dots]$$

Onuogu (23) na-akowaputa usoro nrüzi aruru arü, nke nwere ike kowaputa ihe үfodü maka itü  
nnabata.

$$(24) \quad = 0 \Leftrightarrow 1$$

$$(25) \quad = 1 \Leftrightarrow$$

Nha nhata (24) kowaputara ötütü maka itü ihe na nhata (25) na-akowaputa ihe a püru iji tlo atü.  
usoro maka mgbakö na mwepü di arö n'ime njikarjcha algoridim.

$$(26) \quad = \frac{1}{\sum^m}$$

Nha nhata (26) na-akowaputa mgbanwe atünyere, na-achikota nha sitere n'ofe algoridim  
ihe.

$$(27) \quad * = \max \begin{matrix} 1 \\ \sum^m \\ 2 \end{matrix}$$

Nha nhata (27) na-akowa \* - mmemme nnabata kacha mma site na iji ihe di arö na-aza ajuju.  
maka echiche mmadu na nyocha di mma.

Nyere corpus iwu gbara gburugburu ükpuru cryptocurrency, algoridim na-agbanwe agbanwe. Nke  
Ejiri nlezianya megharja koodu isi mmalite nke ChoiceCoin iji hü na akü ahü abughị ihe nchekwa  
ma ọ bụ ego n'okpuru iwu US. N'ezie, Choice Coin bụ akara ochichị, nke na-arü ɔru  
ike usoro ntuli aka iji kwalite nsonge onye kwuo uche ya na ochichị onye kwuo uche ya.

## Onyonyo 5

Dị ka ma iwu na Usoro mkpuru ego Choice si etolite, nnabata bụ isi okwu na-agà n'ihi. Dị ka egosiri na eserese 5, nnabata bụ usoro na-adịru mgbe ebighị ebi, ọkachasị na nsotu n'ime oru ohuru ohuru na n'ihi iwu.<sup>24</sup> Choice Coin na-agba mbọ ịnqoro na ya onu na nnabata ihe ọhụru - n'ịhụ na protocol kacha mma maka nrubeisi dị ka iwu nke ikike dị mkpa. Dị ka ọrụ mepere emepe, Choice Coin ga-ejigide a ebe nchekwa nnabata na GitHub ya, dị n'okpuru Ilikere Apache.<sup>25</sup>

<sup>24</sup> Veronica Root, Usoro nnabata, 94 I ND . LJ 203 (2019).

<sup>25</sup> Akwụkwụ ikike Apache, Udi 2.0 (January 2004).

### **III. Ochichị kwụṣụrụ onwe ya**

Ntuli aka bụ usoro a na-esi ahazi ozi mkpokota iji chọputa nkwenye. A nkwenye bụ ọnụ ọgụgụ nke akowaputara ma ọ bụ nkwekorịta. Ntuli aka na-eme n'ofe ụlọ ọrụ - na ụlọ ọrụ nzukọ ndị na-eketa ọkè na ntuli aka ndorọ ndorọ ochichị. N'ezie, ịtụ vootu dị mkpa n'ihi na ikike ịtụ vootu

bü Central tenant nke oge a ochichin nyaya kwuo uche kachasi mma maka wana libra ndi okwu putara maka azumahia akú na ụba.

Na Gris, puku afó asato tupu oge a, Atens Democracy mepütara usoro ọhụru nke ndí sonyere nwere ike ijikó ọnú mee mkpebi.<sup>26</sup> Itu vootu bù omenala ochie na akukó ihe mere eme nke mmadú. N'agbanyeghi nke ahú, agbanwebeghi ọtụtu ihe gbasara ụzo ụmú mmadú si eme ntuli aka karja 8,000 afó ka e mesirj. Usoro itu vootu na-anogide na etiti, ndí sonyere na-adabere na etiti ikike ikwuputa olu ha nke ọma. Nsogbu itu vootu na-emetuwa usoro a nke ndí otu na-eme mkpebi, na-echekwa usoro n'ofe netwokú ozi.

### A. Na-akwalite nsongye

Otu n'ime usoro kachasi mma maka iga nke ọma netwok blockchain bù ọnugóu ndí sonyere na-arusi ọrụ ike na gburugburu ya. Emebere netwokú Choice Coin n'ime ime ka ọ see ma jide ndí otu site na nhazi nsongye kachasi mma. Choice Coin na-enye isi ato usoro maka isonye na gburugburu ebe obibi nke Choice Coin. Agbanyeghi, Choice Coin gunyere enwere ike megharja atumatu ka igunye nhọrọ nsongye karja ka oge na-agá. Isi ato Nhọrọ nsongye bù ntinye aka onye kwuo uche ya ugwo ụgwó ọrụ, onyinye ebere, na oghe ọhụru na mmepe.

Ntinye aka obodo na obodo dí oke mkpa maka itolite netwodú mkpuru ego Choice. Ya mere, Choice Coin ga-enye ndí ọrụ na-esonye na ndoró ndoró ochichí n'uzo dí iche ihe ụgwó ọrụ. N'ezie, a ga-ekenye otu silo maka nsongye onye kwuo uche ya. Nke a ga-ekwe ka Obodo Choice Coin iji nweta Choice Coin n'önodú maka mmemme itinye aka na obodo. Ihe omume ndí enwere ike ikwu ụgwó bù idegara onye ọrụ a hoputara akwukwó ozi, na-edeputa ndí omebe iwu amuma, ma ọ bù dee akukó gbasara ọnodú otu onye ndoro-ndoro anya na cryptocurrency.

Akukó dí oke mkpa maka Choice Choice bù Choice Charities, atumatu lekwasirị anya n'inye ndí ọrụ a nhọrọ na onyinye ebere netwok. Ndí ọrụ nwere ike itu vootu site na iji Choice Coin, iji kenyé. Nhọrọ maka ndí ọrụ ebere site na usoro mkpebi enweghi isi. N'önodú ụfodú, ọrụ ebere ịnata ọtụtu votu nwere ike nweta ego ụfodú Choice Coin. Ndí ọrụ ebere n'ime Choice Charities Network ga-aburiri aha anaghị akwụ ụgwó yana ọkwa enweghi ụtụ isi, iji hụ na a iguzosi ike n'ezi ihe nke ụzo ahú.

Mmepe emepe emepe bù njirimara njirimara maka akú na ụba enweghi oke, yana díkwa oke egwu akurungwa ruo n'akukó tekñuzu, gafee ụlo ọrụ ọhụru dí ka komputa quantum, AI, na blockchain. Akukó tekñuzu na-ezo aka na tekñuzu kachasi ọhụru na tekñuzu dí elu dí adị na ọrụ. Dí ka ndí dí otu ahú, Choice Coin ga-akwalite mmeghe ọhụru nke ikpo okwu ya site na

<sup>26</sup>Cammack, Daniela Louise. 2013. İchegharị ochichí onye kwuo uche Atens. Akwukwó akwukwó doctoral, 13-14 Harvard Mahadum. (2013), <http://nrs.harvard.edu/urn-3:HUL.InstRepos:10423842>.

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### Ibe nke 19

ụgwó ọrụ onye nruputa na obere onyinye. Enwere ike inye onyinye ego site na usoro dí iche ihe, dí ka GitCoin ma ọ bù obere akpa Algorand, ma ga-akwalite mmeghe ọhụru na Algorand Netwok na Choice Coin GitHub. Ozokwa, mmemme mmeghe emepe emepe nwekwara ike igunye na-enye ndí na-edo akwukwó ugwo, iji kwalite mgbasa ozi ziri ezi na enyochaghị anya n'ofe ahú Choice Coin na netwokú Algorand.

The Choice Coin Network ga-akwado Algorand Network karja n'ozuzu site na nke a oghe usoro ohuru - dí ka ụzọ Uniswap na GitCoin si akwado akú na Netwok Ethereum. Mana ihe ga-emecha kewapụ Choice Coin na akú ọ bụla ọzo bù nke ahú Choice Coin na-ejide ihu tekñuzu na mmeputa ntuli aka mepere emepe. N'uzo dí egwu, Choice Coin bù oru ngo na-emeghe ma na-akwado mmepe mmepe site na Community ya, n'ụdi

ngwanro dì n'okpuru ikikere Apache.<sup>27</sup>

## B. Protocol itu vootu nke anō

Mkpuru ego Nhørø na-akwado Protocol Voting Fortior, nke na-akwado mkpebi ndị a na-achikötaghị. Nke Protocol ntuli aka nke anō na-enyere ndị otu dì iche iche aka igbasa usoro ime mkpebi ha, yabu ibelata ihe mgbochi ịbanye na teknuzu blockchain na ntinye. O na-edekọ data na Algorand Blockchain maka ebunnuche nke ichekwa ozi yana ịgbakota votu na dekọ onye meriri emechaa.

### Onyonyo 6

Ọnụogu 6 na-egosi Protocol Fortior Voting Protocol dì ka usoro nzogukwu ato, ebe otu nzukọ. na-eme usoro itu vootu agbahapụla; akara ntuli aka dabere na mkpuru ego Nhørø A na-ekesa ụkpuru ụlo maka ndị otu niile; na itu vootu na-eme, na nsonaaazu ya edekọ na tabuled na Algorand blockchain.

A na-eme ka Protocol Voting Protocol dì mfe maka ịru ọrụ nke ọma na usoro. Protocol na-enye ohere ka ọtù dì iche iche kenyé ndị sonyere na ndị goomenti inye vootu na ọnụ ọgụgu mmadu. Usoro itu vootu site na iji Choice Coin nwere ike imeghe ma ọ bụ mechie ndị otu a otu nzukọ. Mkpebi ma ọ bụ atumatu ndị a ga-enwe adreesi raara onwe ya nye na Algorand Blockchain nwere adreesi ndị menjuputara na-achikota votu ahụ. Dịka ọmụmaatụ, votu nwere ike ịbü tabulated site na enweghi steeti smart contracts na-eziga otu Nhørø na adreesi maka mkpebi. N'ime usoro a gbanwechara, onye nchikwa nwere ike ịkwusi ịguta oge ọ bụla iji tabulate Nsonaaazu ahụ. N'ikpeazụ, a na-agbakọ nsonaaazu ya site na nkwekorita smart steeti na-agụta ọnụ ọgụgu nke votes.

<sup>27</sup> Akwukwu ikike Apache, Uđị 2.0 (January 2004).

Otu uru nke Fortior Voting Protocol na-enye bụ ikiye maka ntuli aka niile usoro a ga-ekewa n'enweghi nsogbu. A na-echekwa ozi onye ntuli aka ọ bụla na nchekwa data echekwara yana echekwara site na post-quantum cryptography. Maka nchekwa agbawunyere, ọdụ data enweghi isi nwere ike mechie ọnụ ka ibelata ihe egwu maka egwu nchekwa abawanyela. Onye ntuli aka nwere ike iji igodo echedoror ibido ya usoro itu vootu. Nke a na-enye ohere maka usoro itu vootu dipuru adịpụ nke na-ejigide nchekwa, si otu a na-agaa n'ihi ibelata ihe mgbochi ịbanye maka itu vootu na Algorand Blockchain.

Protocol Fortior Voting Protocol na-emesi ike ikenye oke nha kwesirị ekwesi enyere na mkpebi - eme usoro. Kpomkwem, ọgụgu isi agbawunyere na-abanye n'ime ndị na-enweghi obodo nkwekorita smart na nkwado nke ọma nke njirimara onye ntuli aka site na iji igodo echekwara. Nke kpomkwem paramita bụ oke, nke e dekoror na nchekwa data ma tinye ya site na ntuli aka maka nkwado. Nkwekorita smart na-enweghi obodo na-eziga ụfodụ ọnụogu akụ na mkpebi adreesi, nke na-eji nkwekorita smart Algogeneous iji chikota votu yana dekọ rịzolt. N'ime nkenke, Choice Coin leverages Fortior Voting Protocol na Algorand Blockchain imepụta. ndekọ nchekwa nke mkpebi ntuli aka. N'ijikọ ọnụ, mkpuru ego Nhørø na Protocol itu vootu nke Fortior

ga-enyere aka ikwalite mkpebi onye kwuo uche ya na otu, otu, na gょomenti.

### C. Mkpebi Democratic

N'ime ụwa nke mbufe cryptocurrency, nsogbu ọchịchị gbasasịri chọrọ na-emepụta ụzọ maka ndị sonyere iji nweta nkwenye maka otu esi ekesa data na-enweghi nnyonye anya mpugà ma ọ bụ ọchịchị. Dịka ọmụmaatụ, ọ bùrụ na ụlọ ọrụ na-arụ ọrụ n'okpuru a usoro nke decentralized chọrọ kpomkwem ụzọ iji choputa mgbanwe ọchịchị, nzukọ ga-eji ntuli aka n'etiti ufodù ndị otu nọ na network iji nweta mkpebi. Ihe atụ ozo bụ ntuli aka, nke na-enyocha ndị sonyere n'ofe obodo. N'okwu abụo ahụ, mkpebi - ime na ọchịchị na-ata ahụhụ site na enweghi nha anya na ohere. Kpomkwem, A na-ahapụkarị ndị mejuputara na ndị otu mgbe ha na-eme mkpebi nhazi ma ọ bụ nnukwu.

Protocol Fortior Voting Protocol na-eme ka akwukwọ ndekọ ego gbasasịri na Nhọrọ ịdeko votu mere. sonyere. A na-edekọ votu na Algorand Blockchain wee mee ka ọ dị site na nke Algo Explorer. Algo Explorer na-edekọ naanị adreesị Algorand oha nke onye ntuli aka, ịjhụ na edobere nzuzo na njirimara onye ịtụ vootu na nzuzo. A na-eme nke a site na hashing data nhoputa ndi choro n'ime akwukwo hexadecimal site na SHA-512 protocol.

SHA-512 bùkwa protocol cryptography post-quantum, na-ahụ na ọ na-eguzogide ọgu. ihe onwunwe na-ejide ọbụna mgbe etinyere ya megide komputa quantum. Nke a na-enye mmesi obi ike na A naghị ewepụta ozi nzuzo nye ndị mwakpo obi ojọq. Ozokwa, usoro ahụ bụ ma oghe na echekwabara, na-enye nkwalite karịa sistemụ dị ubgu a, ebe ndekọ ntuli aka na ndị ọzọ A na-emekarị ozi oha na eze na-enweghi nkwenye nke ndị sonyere. Ozọ oganihu nke akwukwọ akụkọ ziri ezi bụ ikike ndị ntuli aka ịdepụta na a na-agụ votu ha nke ọma. Akwukwọ akụkọ oha na-enye onye ọ bùla ohere ịtụ vootu ka ịlele ndekọ ntuli aka nke ha adreesị Algorand nkeonwe, si otu a na-eje ozi na-eme ka ntukwasị obi na-atụ vootu na usoro ọchịchị onye kwuo uche ya.

Nkwekorịta ka bụ nsogbu na usoro ntuli aka nke ubgu a, yana ọtụtu usoro ịtụ vootu iji agba ọsọ ma ọ bụ ngụkọ iji choputa onye meriri. Otu ọ dị, nke a na-emepe ohere maka ndị egwuregwu obi ojọq na-ebuso usoro ịtụ vootu ọgu ma na-ebutekwa igbu ogé nke nwere ike ịga n'ihi

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### Ihe 21

mee ka usoro ịtụ vootu dị ogologo. Protocol Fortior Voting Protocol tịrụ aro iji tekñuzu quantum kama iji hụ na enwere ike nweta nkwenye ngwa ngwa. Nke a ga-akacha emetụta n'ọnodụ nke chọrọ ka e mee mkpebi ngwa ngwa.

A na-eji mgbakọ Quantum eme ihe kpomkwem na Protocol Voting Fortior n'ọnodụ ebe enwere tie, ma ọ bụ na nsonaaazụ ya abaghị uru na ọnụ ọgugu. Mgbakọ Quantum na-enye otu abụo ahụ na ndị na-atụ vootu nwere mkpebi ziri ezi na mgbakọ na mwepe, si otu a na-enyere ha aka iru mkpebi Ọsọ ọsọ. A na-enweta nkwenye site n'ikpọ quantum oracle, nke na-egosipụta ụkpuru na-enweghi usoro site na komputa quantum iji choputa nsonaaazụ mgbe achọrọ ya. The quantum oracle wee bùrụ vootu maka otu nhọrọ dị, nke a na-ekwuputakwa onye mmeri. The quantum oracle bụ ihe nhọrọ maka Protocol ịtụ vootu nke anọ.

N'ikpeazụ, ma Choice Coin na Fortior Voting Protocol na-arụ ọrụ iji belata ihe mgbochi maka. ndị ntuli aka na ọchịchị onye kwuo uche ya. Usoro ịtụ vootu na-eme ka ndị niile sonyere nwee ike ịtụ vootu na-enweghi ịbụ akụkọ nke usoro mechiri emechi ma ọ bụ na-echere ogologo ahịri. Mkpuru ego Nhọrọ na-enyere ndị ntuli aka aka ikwuputa Nhọrọ ha n'ime ọgu, si otu a na-eje ozi na-abawanye nsonye ịtụ vootu usoro ntuli aka. Ihe niile onye ntuli aka na-enye bụ ozi nwere ike imata ma ha ga-enwe ike dejuputa wepụta votu ahụ site na iji Nhọrọ na Protocol Voting Fortior. Mmemme ọgugu isi agbakwunyere wee jiri hashes nke ụkpuru ndị a tñnyere hashes echekwara na nchekwa data dípuru adípụ maka njirimara nkwenye. Usoro a na-eme ka o doo anya na enwere ike idobe nchekwa mgbe ị na-ahapụ ndị ntuli aka

sonye na ochichi onye kwuo uche ya site na nkasi obi nke ulo ha.

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**Ibe 22**

## Mmechi

Akwukwo ọcha a webatara Choice Coin, ịtụ vootu na ọchichị akụ na ụba Algorand Blockchain. Akụkụ m tylere ngbanwe nke Choice Coin na Algogeneous Smart Nkwekorita. Akụkụ II kowaputara akurungwa Nhọro, gụnyere sistemụ ngwanro na mgbakọ usoro nnabata. Akụkụ nke Atọ nyere usoro maka ọchichị kwụşuru onwe ya na Nhọro.

N'ikpeazụ, Choice Coin bu n'obi rụq ọrụ dị ka akụ ịtụ vootu nke nwere ike inye aka kwụşuru onwe ya ọtụ dị iche iche na mkpali ikere (okè maka igbasị ọchichị onye kwuo uche ya. Dị ka nke a, Choice Coin's Ebunnuche bụ ikwado nsongye onye kwuo uche ya yana ịtụ vootu enweghi nchekwa. Dị oke egwu na nke a mbọ na-ahụ na Choice Coin na obodo ya na-ejigide ọmarịcha ụkpuru na ụkpuru nnabata. Na mbelata ọnụ na quantum cryptography, ögugụ isi, na blockchain teknuzụ, Choice Coin na-echeputa site na ihe ọhụrụ mepere emepe maka ọha mmadụ nweere onwe ya.

