AYETA!

Ngwaọrụ ikike dijital

Kingdom of the Netherlands

PARADIGM INITIATIVE

Stanford PACS
Center on Philanthropy and Civil Society

AYETA

NGWAỌRỤ IKIKE DIJITAL

Nke ndị Paradigm Initiative biputara

Nke e biputara na April 2024

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OKWU MMALITE

Dịka ndị na-akwalite ikike dijital na-enwekwu ụjọ gbasara nchekwa dijital ha, ọ dị mkpa na ha ga-agba mbọ hụ na ha chekwara onwe ha dịka ha na-arụ ọrụ. Mbiputa ọhụrụ nke Ayeta Toolkit a na-egosi nchọpụta ọhụrụ gbasara ụzọ mmadụ si echekwa onwe ya na intaneti na ihe ndị e nwere ike ime ịgbanahu ihe egwu dị na intaneti. Ihe ndị ọzọ dị n'ime ya bu ndepụta aha ndị na-ahụ maka nchekwa dijital, emume ndị dị mkpa gbasara ikike dijital na mba Afrika, mgbakwunye ebe i nwere ike ịgụ ihe gbasara nnyocha nchekwa dijital ndị e mere na ụfọdụ obodo a họpụtara na mba Afrika, akwụkwọ iwu na nkwupụta mmekọrịta nlereanya. E weputara otu mpaghara ngwaọrụ ikike a kọwaa ihe gbasara nkwụsị network, ihe i nwere ike ime ịgbanarị nkwụsị network, ụzọ ị ga-esi dekọọ ihe mere, na edemede ndị ga-enyere gị aka ịma ihe ị ga-eme ma ịhụ onwe gị n'ọnọdụ dị otu ahụ.

E mepụtara ngwaọrụ ikike nke mbụ n'afọ 2020 dịka ọrụ ndị Stanford Digital Civil Society Fellowship, tinyere nkwado Netherlands Human Rights Fund. Gbenga Sesan, na Boniface Withaba nke nyere ya aka, bụ onye hụrụ maka nhazi ọrụ, nchọpụta isiokwu, odide na mmezi, tinyere nkwado ndị otu Paradigm Initiative.

Anyị na-ekele ndị anyị na ha na-arụkọ ọrụ na PIN, ndị gosiri anyị ụzọ anyị ga-esi dozie mbiputa nke gara aga. Ezigbo ndụmọdụ ha nyere anyị aka ime ka ngwaọrụ toolkit a ka mma maka ụwa nke taa. Ezigbo ọrụ banyere n'ime inyocha na idozi toolkit a, nke ndị rụrụ ọrụ a bụ ndị otu PIN Angela Onyegbuna, Sani Suleiman, Khadijah El-Usman, Bridgette Ndlovu, Ihueze Nwobilor, Joshua Oke and Miriam Wanjiru. Anyị na-ekele Izak Minnaar, onye meziri edemede a. Judith Ogutu, Giyo Ndzi and Samuel Ojezele ndi otu PIN bụ ndị nọ n'isi ajụjụ nnyocha, ebe Kenneth Oyeniyi na David Chima hụrụ maka 'design'. Dinchi Ikpa, Ifiokobong Uko na Angela Onyegbuna lebara anya na njikọ na-aga edemede ndị ọzọ, ebe Khadijah El-Usman, Angela Onyegbuna na 'Gbenga Sesan deziri mbiputa nke ngwaọrụ a.

Ebumnuche e ji dee ngwaọrụ a bụ igosi uru dị mkpa ọ bara ichekwa ndị bu ihe gbasara ikike dijitalu n'isi, ndị nta akụkọ, ndị ọgbama, na ndị ọzọ ji ozi e zoro ezo arụ ọrụ na mba

ndị na-emepe emepe. PIN ga-ahụ na edemede a na-aga n'ihu site n'ibiputa ozi ọhụrụ kwa oge. Anyị na-ele anya na ị ga-akwado anyị site na ịgwa anyị ihe i chere gbasara edemede a- biko zitere anyi ihe i chere, ihe e nwere ike ime, ihe e kwesiri imezi na akụkọ ọbụla n'akara ozi email hello@ayeta.africa.

Mbiputa ọhụrụ nke Ayeta Toolkit a na-egosi nchọpụta ọhụrụ gbasara ụzọ mmadụ si echekwa onwe ya na intaneti na ihe ndị e nwere ike ime ịgbanahu ihe egwu dị na intaneti

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NKỌWA OKWU

ISI NKE 1

IKIKE DIJITAL

Mbido intaneti na mmepe ya nye ụwa niile n’afọ 1989 emeela ka ndị na echekwa ikike ndị mmadụ gbanwee ụzọ ha si eji ebe mgbakọ ndị dị na intaneti akwalite nnwere onwe nke nkwupụta okwu, nnwere onwe nke nnọkọ na intaneti, nakwa mwulite mmuta ọha mmadụ n’ihe gbasara dijital. Taa, a na-ahụta ịntanetị dị ka ihe diịrị ọha mma, nke na-ejikọtakwa ihe karịrị ọkara mmadụ nọ n’ụwa ọnụ.

N’agbanyeghị nke a, intaneti na-agbanwe n’ụzọ ndị a na-atụghị anya, nke mere na ihe ịma aka n’ihu diịrị ndị ọnụ dị n’okwu, ndị na echekwa ikike ndị mmadụ, ndị mgbagha, na ndị nta akụkọ, na-ala elu kwa ụbọchị. Ndị ọchịchị ike ebidola iji ngwá ọrụ dijital na ụzọ ndị ọzọ nke gụnyere mmechi ịntanetị, mmachi ihe dị na intaneti, na nnyocha dijitalụ, egbochi nnwere onwe nke nkwupụta okwu.

Dịka e deturu n’ime 2019 Digital Rights in Africa Report,[1] nke Paradigm Initiative weputara, “N’ime afọ iri gara aga, e nweela mmụba na mgbanwe sitere n’ọrụ òtù ndị Africa na-ekwusi okwu ike gbasara ikike dijital. Nke a gụnyere njikọta ịntanetị dị ọnụ ala ma dịrịkwa mma, nzuzo ozi onwe, nnwere onwe nke uche, nke okwu, na nke mkpakọrita. Dịka ikike dijital na-amụba n’etiti ndị a na-achi na mba Afrika, n’aka nke ọzọ, ebumnuche ndị ọchịchị n’Afrika gbasara ịntanetị zuru mba Afrika ọnụ na-abụkarị iwe ya dịka ihe ha ga-eji jigide ike ndọrọ ndọrọ ọchịchị ma nwekwa ọnụ na ihe na-eme n’obodo n’uzo ọbụla. Ebe uche ha na-aga karịsịa bụ n’izọgide

ikike ndị mmadu ụkwụ , ka ha nwee ike jisie ndị ha na-achi ike n'ihe gbasara ndọrọ ndọrọ ọchịchị."

Dịka e deputara na 2022 Londa Digital Rights and Inclusion in Africa report[1] , e nweela ihe ịma aka ọhụrụ ndị ọzọ na-apụta ihe ugbu a: "Teknụzụ ndị na-apụta apụta dịka Artificial Intelligence (AI) na-agbanye mgbọrọgwụ, ma bụrụkwa ihe ndị mmadụ na-amata, na-anabatakwa na mba Afrika", tinyere "nzuzo na ọchịchị data, na ụkọ ịza ajụjụ na nleba anya."

Ihe ndeputa nke afọ 2022 sitere n'aka Access Now kpuhere ọnụ ọgụgụ mmechi ịntanetị kachasi elu n'ime otu afọ : Obodo iri atọ na ise gburugburu ụwa niile gabigara mmechi ịntanetị. N'ime obodo ndi a, asaa di n'ime Africa (Burkina Faso, Ethiopia, Sierra Leone, Nigeria, Somaliland, Uganda na Zimbabwe). Ihe pụtara ìhè bụ na afọ gara aga, e nwere mmechi ịntanetị n'obodo Africa iri na abụọ.

Omume obodo ndị a megidere iwu Principle 38.2, ("*Obodo agaghị etinye aka, ma ọ bụ kwadoo mmachi intaneti na teknuzu dijital ndị ọzọ nye otu ndị mmadụ, ma ọ bụ ọha mmadụ niile*") nke e deputara n'akwụkwọ iwu 2019 Declaration of Principles on Freedom of Expression and Access to Information in Africa[2], nke ndi otu African Commission on Human and Peoples' Rights (the 2019 ACHPR Declaration) nakwa n'akwụkwọ iwu Universal Declaration of Human Rights.[2]

1.1

Gịnị bụ ikike dijital?

Ikike dijital bụ ikike mmadu nwere n'oge intanet a. Ịma atụ, Ikike mmadụ nwere ikpuchite onwe ya na intaneti na nnwere onwe kwupụta okwu bụ mbawanye iwu ikike enweghi mgbagha, nke e deputara n'akwụkwọ iwu United Nations Universal Declaration of Human Rights[2]. Ikike dijitalu bu ikike ndị mmadụ nwere iji igwe komputa mee ihe ha chọrọ ime, nakwa ikike ịgụ, ikesa na ibipụta ihe dị na intaneti. Ọ na-ekwukwa ihe gbasara ikike ndị mmadụ nwere iji ozi dị na intaneti n'ụzọ ziri ezi nakwa ikike ikpuchite onwe ha. Dịka otu UN kwuru, igbochi ndị mmadụ ịhụ ozi dị na intaneti megidere ikike ndị a, ma megidekwa iwu mba uwa[3] .

Ọzọkwa, mbido akwụkwọ iwu nke 2019 ACHPR Declaration kwenyere na ikike ndị mmadụ nwere oge ha anọghị na intaneti bụkwa otu ikike ahụ, nke e kwesiri ichebe mgbe ha nọ na intaneti. Iwu a kwetara na nnabata ikike nnwereonwe nkwupụta okwu na ozi iru mmadụ aka site na intaneti dị mkpa nye ndị mmadụ inwe ikike ndị ọzọ, ma dịrịkwa mkpa na imechi nkewa dijitalu[4] . Atumatu a kwadoro ka ikike ozi iru aka na ikike nnwereonwe nkwupụta okwu nke dị na Article 9 n'akwụkwọ iwu African Charter on Human and Peoples' Rights dịrị ire n'oge dijital a.

1.2

Iwu, Nkwupụta, Usoro na Nkwekọrịta ikike dijital na ikike mmadụ.

Dịka anyị kọwara, ikike mmadụ metụtara mmekọrịta niile mmadụ na ibe ya na-enwe, ma oge ha nọ na intaneti, ma oge ha anọghị na intaneti. Ọ dị mkpa na ụkpụrụ e hiwere n'ime ikike dijital na ikike mmadụ niile jikọrọ ọnụ bụrụ iwu ji mmekọrịta mmadụ na ibe ya na intaneti, nakwa mkpebi niile a ga-eme ebe dị iche iche gbasara intaneti.

The UN Declaration of Human Rights[5].

Nkwupụta banyere ikike mmadụ nke ndị otu mba ụwa nke a na-akpọ The Universal Declaration of Human Rights (UDHR) bụ akwụkwọ iwu dị mkpa n'akụkọ ikike mmadụ. Ndị nnochiteanya si mpagahara ụwa di iche iche, ndị bụkwa ndị okaiwu jikọrọ aka depụta akwụkwọ iwu a. Otu

1 https://paradigmhq.org/wp-content/uploads/2023/04/Londa-2022.pdf
2 https://achpr.au.int/en/node/902
3 https://www2.ohchr.org/english/bodies/hrcouncil/docs/17session/A.HRC.17.27_en.pdf
4 https://achpr.au.int/en/node/902
5 https://www.un.org/en/about-us/universal-declaration-of-human-rights

United Nations General Assembly manyere iwu a n'obodo Paris na December 10, 1948 (nke a kpọrọ General Assembly resolution 217 A) dịka ihe nlereanya itozu oke nye mmadụ niile na mba ụwa niile. Ọ na-akọwapụta ikike mmadụ ndị dị mkpa, nke mba ụwa kwesiri ichebe. A tụgharịala akwụkwọ iwu a n'ime ihe karịrị asụsụ narị ise.

African Charter on Human and People's Rights[6]

Iwu gbasara ikike mmadụ nke ndị mba Afrika nke a na-akpọ The African Charter on Human and Peoples' Rights (nakwa Banjul Charter) bụ iwu kpuchiri ọtụtụ ihe, na ngwaọrụ e lere anya na ọ ga-akwalite ma chebe ikike mmadụ na nnwereonwe dị mkpa na mba Afrika. E hibere iwu a na June 1, 1981, manye ya na October 21, 1986. Ruo taa, iwu a bu ngwa ọrụ dị mkpa nye ndị otu African Union (AU). Iwu a nyere ndị otu African Commission on Human and Peoples' Rights ike ileba anya na mmejupụta iwu gbasara ikike mmadụ, ikike mmekọrịta mmadụ na ibe ya na azụmahịa, ikike obodo, na ikike ndọrọndọrọ ọchịchị nke e deputara n'akwukwo iwu a.[7]

Malabo Convention[8]

Ọgbakọ ndị otu African Union (AU) nke isiokwu ya bụ Cyber security and Personal Data Protection nke a na-akpọkwa Malabo Convention bụ sọọsọ otu iwu nkwekorita nke na-ejikọ mpaghara mba dị iche iche, ma ewepu nke dị na mba Europe. A manyere ya oge obodo iri na ise nabatachara ya na June 8, 2023. Nke a mere mgbe afọ itoolu gafechara site na mgbe e hibere ya na June 27, 2014. Nkwekọrịta a na-eweta usoro nleranya zuru oke, nke zukwara mba Afrika niile, nke ndi ome iwu ga-eji hazie iwu gbasara nchebe ozi, ikike dijital, mkpuchi onwe na nnwereonwe intaneti. Ọgbakọ Malabo nwere ebumunche abụọ dị ezigbo mkpa n'ime ihe ndị ọzọ. Nke mbụ, o kwuputara na obodo ndi nọ n'okpuru ya ga-ehiberiri usoro iwu na-ekpuchite ikike ndị mmadụ nakwa ozi data gbasara ha. Nke abụọ, ọ na-eme ka ọ hazie ikike ndị a na-achị na iwu obodo, tinyekwara ikike ndị obodo dị iche iche[9].

ACHPR Declaration of Principles on Freedom of Expression and Access to Information in Africa[10]

Nkwupụta 2019 ACPHR Declaration nọchiri nkwupụta 2002 Declaration on Freedom of Expression in Africa. O nwere ngalaba ọhụrụ ebe ndị e deputara usoro banyere ikike mmadụ nwere na intaneti, nakwa ozi iru mmadụ aka. A kwadoro nkwupụta a site na iwu nlereanya ndị e wepụtara na otu gbasara ikike mmadụ ndi si na mba Afrika na mba ụwa, nke gunyere mpaghara ebe ụlọ ome iwu ndị dị na Afrika nwere ike. Nkwupụta a gunyere ụkpụrụ hibere ọrụ diịrị ndị isi obodo ikpuchite ikike intaneti, ịrịọpụta intaneti nke zuru obodo ọnụ, nke ruru aka, nke ziri ezi nakwa nke dị ọnụ ala, tinyekwara nchebe ozi mmadụ n'intaneti na ileba anya na nzikọrita ozi mmadụ na ibe ya na intaneti.

African Union Data Policy Framework[11]

Usoro iwu data nke ndị African Union nke a na-akpọ The AU Data Policy Framework (nakwa DPF) nke e biputara na July 2022 bụ otu n'ime ngwa ọrụ pụtara ihe na-achị ozi data na mba Afrika. Ndị otu AU Commission tinyere ndị ọzọ so n'otu AU, nakwa ụfọdụ so n'otu abụghị AU gbakọrọ aka mepụta usoro iwu DPF a. Ọgbakọ AU Executive Council binyere aka na usoro iwu a na February 2022. Usoro iwu DPF bụ usoro zuru oke nke ga-egosi mba Afrika ụzọ ha ga-esi hibe ọchịchị data dị ire ka ha nwee ike rite uru

6 https://au.int/en/treaties/african-charter-human-and-peoples-rights
7 https://achpr.au.int/en
8 https://au.int/en/treaties/african-union-convention-cyber-security-and-personal-data-protection
9 https://www.ejiltalk.org/the-african-unions-malabo-convention-on-cyber-security-and-personal-data-protection-enters-into-force-nearly-after-a-decade-what-does-it-mean-for-data-privacy-in-africa-or-beyond/
10 https://achpr.au.int/en/node/902
11 https://au.int/sites/default/files/documents/42078-doc-AU-DATA-POLICY-FRAMEWORK-ENG1.pdf

na mgbanwe data na dijital nke dị ugbu a. Dịka usoro iwu mpaghara mba na mba ụwa ndị ọzọ, usoro iwu DPF ejighi obodo ndị dị n'okpuru AU n'iwu. N'agbanyeghi nke a, ọ bụ usoro iwu nwere ugwu nakwa nke ndị ọchịchị na ndị na-akwalite mgbanwe ozi na mba Afrika na-elere anya[12].

African Declaration on Internet Rights and Freedoms[13]

Nkwupụta mba Africa gbasara ikike na nnwereonwe intaneti nke a na-akpọ African Declaration on Internet Rights and Freedoms (AfDec) bụ ọgbakọ ndị si obodo dị iche iche na mba Afrika mepụtara maka ikwalite ikike mmadụ nakwa ụkpụrụ banyere ihibe iwu metụtara intaneti, ma mee ya n'ụzọ ziri ezi. Ebumnuche nkwupụta a bu ịkọwapụta ụkpụrụ ndị dị mkpa ịkwalite ikike mmadụ na intaneti nakwa ịzụlite intaneti ka ọ bụrụ ebe ga-ezute mkpa na ebumnuche mba Afrika nwere banyere ọchịchị, ịzụ ahịa na mmekọrịta ọha na eze.

AfDec gbagidere ụkwụ n'akwụkwọ iwu gbasara ikike mmadụ ndị a kwadoro nke ọma n'Afrịka. Akwụkwọ iwu ndị a gụnyere African Charter on Human and Peoples' Rights, the Windhoek Declaration on Promoting Independent and Pluralistic Media[14] nke 1991, African Charter on Broadcasting[15] nke 2001, the initial Declaration of Principles on Freedom of Expression in Africa nke 2002 na African Platform on Access to Information Declaration[16] nke 2011.

African Union Declaration on Internet Governance[17]

E mepụtara nkwupụta nchịkwa intaneti nke otu AU (African Union Declaration on Internet Governance) site na usoro ndụmọdụ nke ebumnuche ya bu iji uru nke azụmahịa dijital mepụta ebe ga-adịrị ndị ọnụ na-eru n'okwu na mba Afrika mma itụgharị uche n'okwu ndị dị mkpa na-apụta ma tinye aka na mmepụta iwu metụtara mmekọ ọha na eze na intaneti, nke na-elekwa anya n'ihe na-akpa mba Afrika. Nkwupụta a na-arụ ọrụ dị ka ụkpụrụ nduzi nye ndị ọnụ na-eru n'okwu, ma bụrụkwa ụkpụrụ gosiputara ihe a chọrọ dịka a na-atụle ọdịnihu nke ịntanetị na mba Afrika.

1.3.

Nkwekọrịta jikọrọ mpaghara obodo

Afrịka nwere ụlọ ọrụ dị iche iche dị na mpaghara ya, ndị a na-akpọ RECs (the regional economic communities) - ndị a bụ Southern African Development Community (SADC), Intergovernmental Authority on Development (IGAD), Economic Community of Central African States (ECCAS), Arab Maghreb Union (AMU), Community of Sahel-Saharan States (CEN-SAD), Common Market for Eastern and Southern Africa (COMESA), East African Community (EAC) na Economic Community of West African States. (ECOWAS). Ụfọdụ n'ime otu ndị a nwere nkwekọrịta nke ha dị ka ECOWAS Regional Critical Infrastructure Protection Policy[18] na ECOWAS Cybercrime Directive (nke e hibere na 2011), EAC's Model ICT Policy Framework[19], na SADC nke nwere iwu a na-akpọ Model Law on Computer Crime and Cybercrime (2012)[20].

1.4.

12 https://cipesa.org/wp-content/files/briefs/Five_Takeaways_From_the_2022_African_Union_Data_Policy_Framework_Brief.pdf
13 https://africaninternetrights.org/about/
14 https://www.veritaszim.net/sites/veritas_d/files/Windhoek-Declaration%281%29.pdf
15 http://www.mediaombudsmannamibia.org/pdf/African_Charter_on_Broadcasting.pdf
16 https://www.africanplatform.org/fileadmin/Content/PDF/APAI-Declaration-English.pdf
17 https://au.int/sites/default/files/newsevents/workingdocuments/33025-wd-african_declaration_on_internet_governance_en_0.pdf
18 https://www.ocwarc.eu/wp-content/uploads/2021/02/ECOWAS-Regional-Critical-Infrastructure-Protection-Policy-EN.pdf
19 https://eaco.int/admin/docs/publications/EAC_MODEL_ICT_POLICY.pdf
20 https://www.itu.int/en/ITU-D/Cybersecurity/Documents/SADC%20Model%20Law%20Cybercrime.pdf

Iwu ndị ji obodo

N'ogo steeti, iwu ikike mmadụ, iwu nchekwa data mba na mgbe ụfọdụ iwu cybercrime na-amanye ụfọdụ akụkụ akwụkwọ iwu, nkwupụta na ụkpụrụ ndị a. Dịka ozi nke ụlọ ọrụ Data Protection Africa bipụtara, ka ọ na-erula January 2024, mba Afrika iri atọ na ise ehibela iwu nchebe data mba. N'otu aka ahụ, mba atọ edepụtala usoro iwu maka nchebe data[21].

21 https://dataprotection.africa/

1.5.

Ndị na-eme ihe metụtara nchekwa dijital

Ọtụtụ ndị na-eme ihe nchekwa dijital nwere atụmatụ iji belata adịghị ike na ihe egwu nke ndị nta akụkọ na ndị na-akwalite ikike mmadụ na-agabiga. E nwere ike ịkpọtụrụ ndị ụlọ ọrụ ndị a maka ndụmọdụ na/ma ọ bụ enyemaka n'ihe metụtara mwakpo data, mkpesa ihe mere, okwu gbasara ime iwu, wdg.

AccessNow[22]

AccessNow na-enye akara ekwenti enyemaka maka nchekwa dijital nke mmadụ nwere ike ịkpọ oge niile, nnyocha iwu dabere na akaebe, nkwado na enyemaka nye ndị otu na-arụ ọrụ n'ime obodo nakwa ndị otu nkwalite na-aru ọrụ n'ime ebe mgbaha iwu ikike dijital kacha njo.

AfricanDefenders[23]

AfricanDefenders bu otu ndị na-agbachitere ikike mmadụ na mba Afrika nke ụlọ ọrụ ise[24] si na mpaghara Afrika mejuputara. AfricanDefenders raara onwe ya nye nkwalite na nchekwa nke ndị na-agbachitere ikike mmadụ (HRDs) gburugburu mba Afrika.

Africa Digital Rights Hub (ADRH)[25]

The Hub bụ ọgbakọ "echiche na omume" na-abụghị maka uru nke na-akwalite nnyocha na mwulite amamihe gbasara ikike dijital na mba Afrika. N'ilekwasị anya na mmetụta nke teknụzụ dijital nwere na ndị mmadụ, Hub na-akpọkọta ndị nnyocha, ndị ọnụ ruru n'okwu, ndị na-eme iwu, otu mba na otu mba ụwa iji dozie nsogbu ikike dijitalụ na-agabiga na mba Afrika.

African Digital Rights Network (ADRN)[26]

Nke a bụ ọgbakọ ndị nkwalite, ndị ọkachamara na ndị nnyocha na-eme nchọpụta banyere ikike dijital na Africa. Ha na-agụ akwụkwọ ịchọpụta ihe

22 https://www.accessnow.org/
23 https://africandefenders.org/
24 https://africandefenders.org/members/
25 https://africadigitalrightshub.org/
26 https://www.africandigitalrightsnetwork.org/

ọhụrụ, na-emepụta akụkọ pụrụ iche, ma na-ebipụtakwa ọtụtụ akwụkwọ ikike dijital enweghi atụ.

Africtivists[27]

Africtivists bụ ọgbakọ ndị na-akwalite isiokwu n'intaneti nakwa ndị na-ede blọgụ metụtara ọchịchị onye kwuo uche ya na mba Afrika. Ndị nkwalite cyber-activists 200 si na mba 35 dị iche iche mejupụtara ọgbakọ a.

Association for Progressive Communication (APC)[28]

Ndị otu APC na-arụ ọrụ iji wulite ụwa nke mmadụ niile nwere ike igbanye ụkwụ n'ike okike nke ICT n'ụzọ di mfe, dịrịkwa nha na ọnụ ala iji mee ka ndụ ha dịkwuo mma ma wulitekwuo obodo onye kwuo uche ya nke onye ọbụla bu otu.

Association of Media Women in Kenya (AMWIK)[29]

AMWIK bụ otu mgbasa ozi mba na-elekwasị anya n'ịkwalite olu ụmụ nwanyị n'obodo nakwa ịkwalite ntinye aka ha na idu ndú na ime mkpebi n'obodo.

Association of Privacy Lawyers in Africa (APLA)[30]

APLA bụ otu ndi tọrọ ntọala n'afọ 2022 nke ebumnuche ha bụ ịgba mbọ n'otu olu maka ịkọwapụta, ịkwalite na imezi ọrụ okaiwu nzuzo data na mba Afrika niile.

Article 19[31]

Article 19 gbagidere ụkwụ n'ụzọ nnwere onwe abụọ: nnwere onwe ikwu okwu, na nnwere onwe ịmata ihe. Ebumnuche Article 19 bụ ime ka ndị mmadụ n'ebe nile kwupụta uche ha n'atụghị ụjọ nakwa biri ndụ ha na-atụghị egwu ịkpa ókè.

CoCreation Hub Nigeria[32]

A na-akpọkarị ya Cc-HUB ma ọ bụ HUB, ọ bụ ọgbakọ intaneti ebe ndị na-ahụ maka teknụzụ na-ekerịta ero maka idozi nsogbu mmekọrịta ọha na eze na

27 https://www.africtivistes.org/
28 https://www.apc.org/
29 http://amwik.org/
30 https://aplafrica.com/
31 https://www.article19.org/
32 https://cchub.africa

Nigeria ma karịa.

Collaboration on International ICT Policy for East and Southern Africa (CIPESA)[33]

CIPESA bụ ụlọ ọrụ iwu intaneti nke dị na Kampala Uganda. CIPESA na-akwalite omeiwu ICT nke dị ire, zuokwa ọha maka idozi ọchịchị, ibi ndụ, na ikike mmadụ na mba Afrika.

Committee to Protect Journalists (CPJ)[34]

CPJ bụ otu nọọrọ onwe ya, nke anaghị akwụ ụgwọ, na-abụghị nke gọọmentị, dikwa na New York City ma nwee ndị nta akụkọ nọ gburugburu ụwa. CPJ na-akwalite nnwere onwe mgbasa ozi ma na-agbachitere ikike ndị nta akụkọ nọ gburugburu ụwa niile.

Cyber Security Africa[35]

Cyber Security Africa bụ ulọ ọrụ na-ahụ maka nchekwa ozi na-enyekwa ọrụ na ngwaahịa dị iche iche iji nyere ndị otu dị iche iche aka ichekwa akụ ha bara uru.

Defenders Coalition, Kenya[36]

Defenders Coalition bụ otu njikọ di na Kenya nke ebumnuche ya bu ime ka amamihe nke ndị na-agbachitere ikike mmadụ sikwuo ike, ka ha nwee ike ịrụ ọrụ nke ọma ma belatakwa adịghị ike ha nye mkpagbu, gụnyere nkwado maka ọnọdụ omeiwu na iwu dị mma.

Digital Society of Africa (DSA)[37]

Ụlọ ọrụ ndị DSA na-arụ ọrụ ikwado nnọsi ike na ikike nke ndị bu ọrụ nkwalite n'isi, ndị na-agbachitere ikike mmadụ na ndị otu ndị ọzọ nọ n'ihe ize ndụ na mpaghara Afrika ahụ iji chọpụta n'onwe ha, ma zaghachikwa iyi egwu na mwakpo dijital.

33 https://cipesa.org/
34 https://cpj.org/
35 https://www.cybersecurityafrica.com/
36 https://defenderscoalition.org/
37 https://digitalsociety.africa/

Digital Security Alliance (DSA)[38]

DSA bụ njikọ nke ụlọ ọrụ dị iche iche na ndị ọkachamara nchekwa dijital na Uganda, ndị na-arụ ọrụ iji chekwaa akụ dijitalụ nke ọha obodo, nke ndị na-agbachitere ikike mmadụ, nke ndị nta akụkọ na ndị ọzọ na-akwalite ikike dijital n'ihu iyi egwu si n'aka ụlọ ọrụ ndị dị ike, ndị omekome, ndị isi obodo na ndị ọzọ ọnụ n'eru n'okwu na-abụghị obodo.

Freedom House[39]

Freedom House bụ otu abụghị nke gommenti, anaghị akwụ ụgwọ nke dị na United States na-eme nnyocha na ịkwado ọchịchị onye kwuo uche ya, nnwere onwe ndọrọ ndọrọ ọchịchị na ikike mmadụ.

Frontline Defenders[40]

Frontline Defenders bụ otu na-ahụ maka ikike mmadụ nke tọrọ ntọala na Dublin, Ireland na 2001. Otu a na-echebe ndị na-arụ ọrụ n'emeghị ihe ike iji kwado ikike mmadụ nke ndị ọzọ dị ka e depụtara na akwukwo iwu Universal Declaration of Human Rights.

Gambia Cyber Security Alliance[41]

Ebumnuche otu ndị Gambian Security Alliance bụ ibawanye mmata na nghọta nke ndị Gambia gbasara nchekwa cyber, iyi egwu cyber, nnyopụta ọjọọ, na inyekwa ha ike inọ na nchekwa na mkpuchite n'intanet.

Gambia Press Union[42]

Gambia Press Union bụ otu azụmaahịa maka ndị nta akụkọ nọ na Gambia, nke otu ndị nta akụkọ hiwere n'afọ 1978, na nke nwekwara ebumnuche ịkwalite mgbasa ozi nnwere onwe ya ma sie ike.

Human Rights Defenders Network - Sierra Leone (HRDN-SL)[43]

HRDN-SL bụ njikọ aka nke ụlọ ọrụ ọha mmadụ na ndị mmadụ na-arụ ọrụ maka nchebe na nkwalite ikike mmadụ na Sierra Leone.

38 https://www.defendersprotection.org/dsa/
39 https://freedomhouse.org/
40 https://www.frontlinedefenders.org/
41 https://twitter.com/CyberGambia
42 https://gpu.gm/
43 https://grassrootsjusticenetwork.org/connect/organization/pan-african-human-rights-defenders-network/

Kenya ICT Action Network (KICTANET)[44]

Kenya ICT Action Network bụ ọgbakọ echiche na atụmatụ maka ndị nwere mmasị na, ma na-arụkwa ọrụ omeiwu na nhazi ICT. Ọrụ ya hiwere isi n'ụkpụrụ anọ: nkwado iwu, iwulite amamihe, nnyocha, na nzukọ ndị ọnụ na-eru n'okwu.

Media Foundation for West Africa (MFWA)[45]

MFWA bụ otu e hiwere n'afọ 1997 nke dị na Accra Ghana. Ọ bụ ọgbakọ na-anọchi anya mpaghara mba na-abụghị nke gọọmentị nke ọrụ ya bu ikwalite na igbachitere ikike nnwere onwe nkwupụta okwu nke mmadụ niile, ọkachasị ndị mgbasa ozi na ndị na-agbachitere ikike mmadụ na West Africa.

Media Defence[46]

Media Defence bụ ụlọ ọrụ na-abụghị nke gọọmentị nke e hibere n'afọ 2008 iji nye ndị nta akụkọ na ndị mgbasa ozi nọọrọ onwe ha enyemaka iwu. Ọ na-akwadokwa ọzụzụ na iwu mgbasa ozi ma na-akwalitekwa nkekọrịta ozi, ngwaọrụ ịgba akwụkwọ na atụmatụ maka ndị ọka iwu na-arụ ọrụ na ikpe metụtara nnwere onwe mgbasa ozi.

Paradigm Initiative (PIN)[47]

PIN bụ ụlọ ọrụ nke na-ewulite usoro enyemaka nke ICT na-akwadokwa ikike dijital iji dozie ndụ ndị ntorobịa ihe anaghi erute aka. Omume nkwado ikike dijital nke PIN lekwasịrị anya na mwulite nke iwu ọha gbasara nnwere onwe intaneti na Africa.

PeaceWomen[48]

PeaceWomen bu emume gbasara Ụmụ nwanyị, Udo na Nchebe nke ndị Women's International League for Peace and Freedom (WILPF)[49], otu zuru ụwa ọnụ na-ahụ maka udo nke nwanyị.

44 https://www.kictanet.or.ke
45 https://www.mfwa.org/
46 https://www.mediadefence.org/
47 https://paradigmhq.org/
48 https://www.peacewomen.org/
49 http://wilpf.org/

Pollicy[50]

Pollicy bụ otu ụmụ nwanyị ndị ọkà mmụta teknuzu, ndị ọkà mmụta data science, ndị na-emepụta nka na ndị ọkà mmụta na-arụ ọrụ na njikọ nke data, design na teknuzu iji mepụta ndụ ka mma site na iwulite omenala nke iji data eme ihe n'ụzọ ziri ezi, ikwalite omume nchịkwa data kwesịrị ekwesị na ịkwado iwu ndị na-ewulite oru data na ndị na-aru ya.

Safe Sisters[51]

Safe Sisters bụ emume mkpakọrịta nke ụmụ nwanyị na-agbachitere ikike mmadụ, ndị nta akụkọ, ndị ọrụ mgbasa ozi na ndị bu okwu n'isi. A na-azụ ndị otu a ka ha ghọta ma zaghachikwa ihe ịma aka nchekwa dijital na-eche ha n'ihu na ọrụ ha na ndụ ha kwa ụbọchị.

Women of Uganda Network (WOUGNET)[52]

WOUGNET na-akwalite iji ozi na teknụzụ nkwukọrịta n'etiti ụmụ nwanyị na ụmụ agbọghọ dị ka ngwá ọrụ iji kesaa ozi ma dozie nsogbu ndị dị ka nha nwoke na nwanyị na mbawanye na-adịgide adịgide.

Zambian Cyber Security Initiative Foundation[53]

ZCSI bụ ụlọ ọrụ na-enye ihe ọmụmu na ngwa ọrụ iji nọdụ na nchebe na mkpuchite onwe n'ụwa dijital nke oge a ma chebekwa ndị mmadụ na ụlọ ọrụ site na ọghọm ihe egwu nke cyber na-ebute.

50 https://pollicy.org/
51 https://safesisters.net/
52 https://wougnet.org
53 https://zcsi-foundation.org/

1.6 Emume gbasara ikike dijital

Kwa afọ, gburugburu Afrika, a na-ahazi ọtụtụ emume metụtara ikike na nchekwa dijital, ebe a na-akpọkọ ndị ọnụ na-eru n'okwu si n'ebe dị iche iche ịkparịta nkata gbasara iwu, usoro na-apụta ma na-enye ọzụzụ.

African School on Internet Governance (AfriSIG)[54]

AfriSIG bụ atụmatụ nkuzi nke ọtụtụ ndị ọnụ n'eru n'okwu hibere nke ebumnuche ya bu inye ndị Afrika ohere inweta amamihe na obisike isonye nke ọma na usoro nchịkwa intaneti na arụmụka n'ogo mba, mpaghara mba na uwa niile.

Ụlọ akwụkwọ nchịkwa intaneti ndị ọzọ ndị nọ n'ogo mpaghara mba na mba gunyere:

- West Africa School of Internet Governance (WASIG)[55]
- Kenya School of Internet Governance (KeSIG)[56]
- Nigeria School on Internet Governance (NSIG)[57]
- South Sudan School of Internet Governance (SSSIG)[58]
- Arusha Women School of Internet Governance (AruWSIG)[59]

Digital Rights and Inclusion Forum (DRIF)[60]

DRIF bụ ọgbakọ a na-asụ asụsụ abụọ nke ndị Paradigm Initiative na-akpọ n'ọnwa April kwa afọ. DRIF bụ ebe ọha obodo, ụlọ ọrụ teknụzụ, gọọmentị, ndị nkuzi n'ụlọ akwụkwọ mahadum na ndị ọzọ ọnụ na-eru n'okwu na-atule isi okwu siri ike zukwara ụwa ọnụ gbasara ikike ịntanetị, ọkachasị na mba Afrika.

Forum on Internet Freedom in Africa (FIFAfrica)[61]

FIFAfrica bụ ọgbakọ ndị CIPESA na-akwado kwa afọ n'ọnwa Septemba nke na-elekwasị anya n'ịkwalite intaneti mepere emepe ma na-erute mmadụ niile aka na mba Afrika.

54 https://afrisig.org/
55 https://waigf.org/about-wasig/
56 https://kigf.or.ke/kesig/
57 https://sig.ng/
58 https://ssigf.org.ss/about-ss-sig/
59 https://www.ksgen.or.tz/aruwsig/
60 https://drif.paradigmhq.org/
61 https://internetfreedom.africa/

1.7

Akụkọ mmụta ihe gbasara ikike dijital

Mgbalị nke ụfọdụ ndị isi obodo na-agbalị iji gbado ikike nke ndị nta akụkọ na ndị na-agbachitere ikike dijital site na mmanye iwu, mmechi ịntanetị na ọmụma ụlọ ikpe, gụnyere ụzọ ndị ọzọ, na-egosipụta site na ihe ima atụ ndị a gburugburu Africa:

Cameroon: Na mba a, ọ gaghị ekwe omume ka ụlọ ọrụ mgbasa ozi na-agbaso iwu nchịkọta akụkọ dị mkpa na nke onwe ya na-agabigaghi oke ihe egwu na mkpagbu ma ọ bụrụ na akụkọ ya ewuliteghi mmasị nke gọọmenti na ndị nnọchiteanya ya. Ọnọdụ mmegbu a na-eme ka mmadụ nyochaa onwe ya ma na-ebute ọtụtụ ụlọ ọrụ mgbasa ozi ime ihe ndị ọchịchị ma ọ bụ ndị nọ ha nso chọrọ. Ndị nta akụkọ Cameroon, karịsịa ndị na-akatọ gomeenti ma ọ bụ na-ekwupụta okwu, na-anọkarị n'ihe ize ndụ nke okwu ọnụ ma ọ bụ nke anụ ahụ. Ọmụmaatụ bu onye nta akụkọ a na-akpọ Martinez Zogo, nke a chọtara ozu ya e gbukasiri egbukasi ka ụbọchị ise a tọọrọ ya gasịrị na ọnwa January n'afo 2023[62]. Dị ka onye isi nke ihe nkiri redio na-ewu ewu kwa ụbọchị, nke a na-akpọ Embouteillage (ma ọ bụ Gridlock na Bekee), ọ na-ebu agha mgbe niile megide nrụrụ aka na ebubo oririego, n'asọghi anya ịkpọputa aha ndị dị mkpa n'obodo. Ogbugbu nke Martinez Zogo wụrụ ọtụtụ ndị mmadụ akpata oyi dịka ndị NGO na-aga n'ihu na-ekwuputa okwu megide mgbachi nke nnwere onwe mgbasa ozi na nnwere onwe ikwu okwu[63].

Egypt: Na August 22, 2023 ndị uwe ojii yi uwe nkịtị nwụchiri Gamal Abdelhamid Ziada, nna onye nta akụkọ Egypt na-arụrụ onwe ya nke a na-akpọ Ahmed Gamal Ziada, n'okporo ụzọ dị na Giza, dị ka akụkọ na tweet nke onye nta akụkọ[64] si kwuo. N'echi ya, ndị ọkàiwu boro nna Gamal Ziada ebubo iji social media mee ihe n'ụzọ na-ezighị ezi, ịgbasa akụkọ ụgha na ịbụ onye òtù a machibidoro iwu, ma nye iwu ka a kpọchie ya dika a na-eche ụbọchị a ga-ekpe ya ikpe. Ahmed Gamal Ziada na-ezisa ozi gbasara ihe nsogbu ikike mmadụ na iwu mba ofesi nke Egypt nye webụsaịtị akụkọ ndị dị na mpaghara nọrọ onwe ha, ndị gụnyere Raseef, Daraj na Middle East Eye[65]. Gọọmenti Egypt gara n'ihu na-emechi ndị nkatọ ọnụ site na mwuchi na ebubo ezighi ezi nke ndị nta akụkọ na ndị na-ede blọgụ, ebe ndị omeiwu wepụtakwara iwu siri ike nke na-aga n'ihu na-ebelata nnwere onwe ikwu okwu na ịnweta ozi. Tinyere iji ụlọ ikpe nchekwa steeti, ebe enweghị ike ịkpeghari ikpe, ndị ọchịchị na-aga n'ihu na-ekpe puku ndị nkịtị ikpe n'ụlọ ikpe ndị agha. Usoro ụlọ ikpe abụọ a bụ ihe mkpagbu ma dakwa mba n'irute ụkpụrụ usoro nlereanya, dịka akụkọ Human Rights Watch 2019 si kwuo[66].

Nigeria: Ejirila teknụzụ nnyocha nyochaa ndị na-ekwusi okwu ike n'udo, ndị na-azọ ọkwa ndọrọ ndọrọ ọchịchị, na ndị nta akụkọ. A na-ahọpụta ha imekpa ha ahụ, ịnwụchi ha na imegbu ha n'ụzọ megidere iwu mba ụwa na iwu na-achị ndị na-ebubata ngwa nnyocha teknuzu. Nigeria bụ onye isi n'izụ ahịa ngwa nnyocha teknuzu ọbụla, nke gụnyere ngwa njichi ịntanetị na ekwenti, nnyocha social media, nke a na-akpo biometric ID data, na ozo a na-akpọ 'safe city' nke na-enyocha ndị mmadụ nọ ebe mepere emepe. Ịma atụ, Omoyele Sowore, onye na-akwalite ikike mmadụ nke zọkwara ọkwa onyeisi ala, chọpụtara na gọọmentị Naijiria agbachiela njirimara biometric ya na January 2022. Nke a pụtara na kaadị njirimara obodo ya, kaadị ntuli aka ya na-adịgide adịgide, paspọtụ mba ofesi ya na akwụkwọ ikike ịnya ụgbọ ala ya so na ndị a gbachiri, nke gbochiri ya ịga njem, ịkwọ ụgbọala ma ọ bụ ịtụ vootu[67].

Tanzania: Dịka akụkọ ndị US State Department

62 https://rsf.org/en/country/cameroon

63 Cameroonian prosecutors wind up probe into the murder of Martinez Zogo | Africanews

64 اعتقال والد الناشط المصري أحمد جمال زيادة

65 https://cpj.org/2023/08/egyptian-authorities-arrest-father-of-freelance-journalist-ahmed-gamal-ziada/

66 https://www.hrw.org/world-report/2019/country-chapters/egypt

67 https://www.ids.ac.uk/press-releases/nigeria-spending-billions-of-dollars-on-harmful-surveillance-of-citizens/

depụtara n'afọ 2022 gbasara omume metụtara ikike mmadụ[68], na June 27, 2022 gọọmentị zigara ụlọ ọrụ DarMpya media akwụkwọ ozi na-ebo ụlọ ọrụ mgbasa ozi a ebubo ụgha gbasara ngaghari iwe e mere na June 17 n'ezi ụlọ ọrụ nnọchianya Kenya nke dị na Dar es Salaam. Ngaghari iwe a metụtara esemokwu di n'etiti ndị bi na Maasai na ndị ọchịchị na Loliondo. Gọọmenti boro DarMpya ebubo irụ ọrụ na-enweghị ikike ma machibido ụlọ ọrụ ahụ ibipụta akuko n'ịntanetị. DarMpya tinyere akwụkwọ imeghari ikike mbipụta ya n'August nke otu afọ ahụ, nke ndị Tanzania Communications Regulatory Authority (TCRA) mechara jụ

.

Uganda: Gọọmenti Uganda gbachiri intaneti na ngwa social media n'oge ntuli aka onyeisi ala na ndị omeiwu na January 2021, nke gbochiri nkwukọrịta na ịnweta ozi[69]. Ozi netwọk nke sitere na NetBlocks Internet Observatory kwetara na mmachi social media na ọgbakọ nkwurịta okwu intaneti nke sitere n'aka ụlọ ọrụ ndị na-eweta intaneti zuru ebe niile na Uganda site na Tuesday 12 January, ụbọchị abụọ tupu ntuli aka ahụ ebido. Nchoputa nke NetBlocks na-ekpughe oke mmachi sitere n'iwu[70] nke ụlọ ọrụ Uganda Communications Commission nyere tupu ntuli aka ebido n'ụbọchị 14th[71]. E wepụrụ mmachi ahụ n'ụbọchị Mọnde ka ntuli aka gasịrị, ihe karịrị awa 100 ka etinyechara ya. Ndị ọchịchị rịọrọ mgbaghara maka nsogbu ahụ ma kwuo na mmachi ahụ bụ iji gbanarị nnyonye anya ndi èzí na ntuli aka ahụ, bụ nke e kwuru na onye ndu ogologo oge bụ Yoweri Museveni meriri onye ọbụ abụ a ma ama nke ghọrọ onye ndọrọ ndọrọ ọchịchị a na-akpo Bobi Wine[72].

1.8.

Akwukwo iwu nlereanya

Ọrụ dịịrị ndị na-akwado ikike dijital, ndị nta akụkọ na ndị ọzọ na-arụ ọrụ gbasara ihe metụtara ọha na eze na-apụta ihe karịa mgbe a na-ahụ ha dika ihe na-egbo ọtụtụ mkpa chere mmadụ ihu.

Nke a bụ ngwaọrụ[73] iji rụpụta akwụkwọ iwu dị irè. Ọmụmaatụ akwụkwọ iwu ndị a gụnyere:

- Africa's Absence in Emerging Technologies[74]
- Assessing The United Nations Cybertreaty Process[75]
- Artificial Intelligence in Kenya[76]
- Censorship and Content Moderation in Angola, Central African Republic and Democratic Republic of Congo[77]
- Towards an Inclusive National Action Plan on Business and Human Rights in Nigeria[78]

1.9.

Nkwupụta Nkwekọrịta Nlereanya

Mmụba dị n'ọchịchọ gọọmentị Afrịka ichịkwa social media site na iwu na-edoghị anya ma ọ bụ isiokwu sara oke mbara na-enyere aka ibelata mmepe intaneti, ikpuchi mwakpo ikike mmadụ na imepụta ihe mgbochi nye ọdịmma ogologo oge na mkparịta ụka udo. A na-ewusi ike imegide omume a mgbe ndị onu na-eru

68 https://www.state.gov/reports/2022-country-reports-on-human-rights-practices/tanzania/
69 https://www.hrw.org/world-report/2022/country-chapters/uganda
70 https://www.reuters.com/article/us-uganda-election/uganda-bans-social-media-ahead-of-presidential-election-idUSKBN29H0KH
71 https://www.business-humanrights.org/en/latest-news/uganda-shuts-down-internet-ahead-of-general-election/
72 https://www.reuters.com/article/us-uganda-internet-rights-trfn-idUSKBN29P1V8/
73 https://socialwork.utoronto.ca/wp-content/uploads/2021/06/Policy-Toolkit-Final-v2-Apr27.pdf
74 https://paradigmhq.org/report/policy-brief-africas-absence-in-emerging-technologies/
75 https://paradigmhq.org/report/policy-brief-assesing-the-united-nations-cybertreaty-process/
76 https://paradigmhq.org/report/policy-brief-artificial-inteligence-in-kenya/
77 https://paradigmhq.org/report/policy-brief-censorship-and-content-moderation-in-angola-central-african-republic-and-democratic-republic-of-congo/
78 https://paradigmhq.org/report/policy-brief-towards-an-inclusive-national-action-plan-on-business-and-human-rights-in-nigeria/

n’okwu jikotara ọnụ n’otu olu.

Ọmụmaatụ nke nkwupụta njikọ aka emere iji lebara okwu ndị dị otú ahụ gụnyere:

- Akwụkwọ ozi mepere emepe nke gbasara igbochi Telegram na Kenya[79], nke e dere n’afọ 2023 nakwa nke ọtụtụ ụlọ ọrụ bịanyere aka.
- Nkwupụta e mere n’afọ 2023 n’aha mba 59 nke e gosipụtara na UN Human Rights Council na nke gbasara nnukwu ihe egwu na-eso onyunyo teknụzụ na mkpa nchekwa dị dika a na-eji ngwa ndị a aru ọrụ[80].
- Otu mba ụwa ndị ụlọ ọrụ na ndị ọkachamara na-akpọku gọọmentị India ka ha wepụ iwu a na-akpọ 2023 Telecommunications Bill ma chekwaa ikike mmadụ dị ezigbo mkpa[81].
- Nkwupụta nke ndị otu NetRights Coalition na-akatọ mwakpo teknụzụ dijital nke ndị onu na-eru n’okwu na Zimbabwe n’oge ntuli aka afo 2023[82].
- Nkwupụta nke otu NetRights Coalition mere n’afọ 2023 nke megidere iwu mmachi social media na mba Nigeria[83].

79 https://www.accessnow.org/press-release/open-letter-clarification-on-telegram-blocking-in-kenya/
80 https://freedomonlinecoalition.com/joint-statement-heightened-risks-associated-with-surveillance-technologies-and-the-importance-of-safeguards-in-the-use-of-these-tools/
81 https://www.accessnow.org/press-release/india-must-withdraw-the-telecommunications-bill-2023/
82 https://paradigmhq.org/press-release-the-netrights-coalition-condemns-raids-of-digital-technologies-of-civil-society-actors-in-zimbabwe-during-the-2023-elections/
83 https://paradigmhq.org/the-netrights-coalition-strongly-condemns-the-call-for-blanket-social-media-regulation-in-nigeria/

ISI NKE II | CHEKWA NA NCHEBE

Nchekwa dijital, nke a na-akpọkwa nchekwa intaneti, nchekwa n'intaneti ma ọ bụ nchekwa cyber, na-akọwa ụzọ omume na ịkpachara anya dị iche iche nke mmadụ na-agbaso mgbe ha nọ na ịntanetị iji hụ na ozi nke onwe dị mkpa na nke ngwaọrụ ha bụ nke e chekwara echekwa.

Dika akwukwo ozi eserese e meputara na 2023 nke isiokwu ya bu "Gịnị na-eme na nkeji intaneti" kwuru[84], a na-ezipụ ozi email nde 241.2, tweet 347,222, na ozi ederede nde 18.8 kwa timtim 60 ọbụla. Site na ọnụ ọgụgụ ITU 2023[85] nke na-egosi na ihe karịrị ijeri mmadụ 5.4, ma ọ bụ pasent 67 nke ndị bi n'ụwa jikọtara ọnụ na ntanetị. Naanị ihe nke a nwere ike ịpụta bụ na ndị ọjọọ, ndị omekome, ihe iyi egwu na aghụghọ intaneti na-ezobekwu karịa ka ọ dị na mbụ.

84 https://ediscoverytoday.com/2023/04/20/2023-internet-minute-infographic-by-ediscovery-today-and-ltmg-ediscovery-trends/
85 https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx

THE INTERNET IN 2023 EVERY MINUTE
60 SECONDS
22,831 visits to ChatGPT
241.2M emails sent
18.8M text messages sent
2.4M Google searches
694,000 video hours viewed
347,222 tweets
3.47M snaps created
10.4M viewing minutes
11,035 fake accounts removed
6.3M total Zoom meeting minutes
34,247 Slack messages
11,834 chats on Microsoft Teams
6.94M emoji sent
3.02M photos created with smartphones
271,309 IOS & Android app downloads
Created by: eDiscovery Today & LTMG

2.1

Ihe egwu nchekwa dijital

Nke a bụ ụfọdụ ihe egwu nchekwa dijital onye ọ bụla kwesịrị ịma:

1.Malware

Malware bu mkpụmkpụ aha pụtara "ngwaọrụ ọjọọ." Ọ bụ ihe ndị bekee na-akpo program ma ọ bụ file e mebere ka ọ bụrụ nke na-akpaghasị, wakpoo ma merụọ igwe kọmputa na ekwenti. A na-ebufekarị ya site na mgbakwunye ozi email, ozi ngwa ngwa (IM), mbudata, phishing na ebe nrụọrụ web na-eduhie eduhie. Malware na-ebute mmerụ site na ibibi data dị na ngwaọrụ ndị o metụtara nakwa site n'ịbawanye mkpọchi netwọkụ nke nwere ike ibute nkụchi netwọkụ zuru oke. Ọzọkwa, malware nwere ike ikwe ka ndị mwakpo nweta ozi ọbụla ha chọrọ site na kọmpụta mepere emepe, nke gụnyere ozi nke onwe, data na isi ọrụ nke onye nta akụkọ.

Ụdị malware gụnyere:

Adware - Nke a bụ ụdị software na-etinye onwe ya n'ụzọ ọjọọ na ngwaọrụ gị. E mebere ya ka o gosipụta mgbasa ozi na mmapụta mmadụ achọghị.

Cryptojacking - Ụdị malware nke a na-ejichi ngwaọrụ maka iji ya mee ihe a na-akpọ bitcoin mining, na-abawanye oge ngwaọrụ ji arụ ọrụ nke ukwu, nke na-eme ka ọ kwụsịlata ma na-agbapụ batrị ya.

Ransomware - Ụdị malware nke e mebere iji gbochie ịbanye n'akụkụ niile, ma ọ bụ na otu akụkụ nke igwe kọmputa ruo mgbe a kwụrụ ego a kpọrọ aha, n'agbanyeghị na ịkwụ ụgwọ anaghị ekwe nkwa na a ga-eweghachite ike mbanye. N'ihi na ndị mwakpo ahụ na-achọ ịbawanye ego ha ga-anata ndị mmad, ndị a na-egbochikarị bụ otu buru ibu (ụlọ ọrụ, ngalaba, kọleji, azụmahịa) ndị e ji n'aka na ha nwere ego, tinyere na igbochi komputa ha ga-efu ha oke ihe. N'agbanyeghị nke a, ndị mmadụ n'otu n'otu ka bụkwa anụ nta nke ransomware n'ihi na ha nwere ike ibụ ụzọ e si abanye n'ime igwe komputa ulo oru.

Spyware - Nke a bụ software ọjọọ arụnyere na nzuzo na kọmputa ma ọ bụ ngwaọrụ mkpanaka mmadụ iji nweta ozi nzuzo nke onye nwe ya, dị ka ndepụta weebụsaịtị o gara, paswọdụ na akara credit card[86].

Trojans - Ndị a bụ ndeputa aghụghọ ebudatara na ngwaọrụ nke na-emepere onye mpu intaneti anọghị ngwaọrụ nso ụzọ, na-edobe ngwaọrụ ahụ n'ọtụtụ omume ọjọọ ma ọ bụ omume mbibi, ma ọ bụrugodu naanị inyo (nledo) omume ma ọ bụ mmekọrịta na ngwaọrụ ahụ.

Viruses - Ụdị malware nke na-ejikọta onwe ya na ndeputa ọzọ ma nwee ike ịgbasa n'etiti ngwaọrụ ma mebie data na ngwanrọ. Ọ bụrụ na akwụsighị nje virus ngwa ngwa, otutu ozi-e mail na-awụbata nwere ike iju igwe server, na-akpaghasị ọrụ email mmadụ niile.

Worms - Kọmputa worm bụ ụdị malware nke na-amụba onwe ya dika ọ na-agbasa na kọmputa ndị ọzọ site na otu netwọk gaa n'ọzọ.

Ka ị ga-esi amata na nje Malware abatala na komputa gị.

- Ọrụ system na-adịghị ngwa ngwa ma ọ bụ nke kwụsịrị otu ebe
- Mgbasa ozi spam na mmapụta ozi eremahia.
- Nkụsa komputa ugboro ugboro.
- Akara ngosi amaghi ama na desktọpụ.
- Ntugharị site na webụsaịtị ama ama gaa na nke amaghị.
- File ma ọ bụ folder emepụtara na-anaghi ikike gị.
- Ike battery nke na-agwụ ngwa ngwa.

Ihe iyi egwu onyunyo dijital

86 https://www.britannica.com/technology/spyware

Nke a gụnyere nsogharị ọnọdụ, mmata ihu, onyunyo ọha mmadụ na nkwụsị nzikorita ozi. Onyunyo nwere mmetụta ọjọọ na ikike ndị edemede na ndị nta akụkọ ime nnyocha na ibipụta akụkọ, ma na-eme ka o sikwuoro ha ike ichebe ebe ha si enweta akụkọ.

Mwakpo social engineering

'Social engineering' bụ usoro a na-eji eduhie ndị ọrụ iji kpughee ụfọdụ ozi, mee ihe a kpọrọ aha maka ihe na-ezighi ezi, ma ọ bụ mepeere malware ụzọ. Nke a nwere ike ịbụ mbọ onye a maghi na-agba iji napụta gị ozi nke ị gaghị ekekọrịta n'intaneti, dịka ozi gbasara kaadị kredit, ụbọchị ọmụmụ, ebe ezumike kacha amasị gị, aha anụ ụlọ. Hà chọrọ ozi ahụ n'ezie? Azịza nye ajụjụ ndị a nwere ike ibute mwakpo account.

Ụfọdụ ụzọ e si eme social engineering gụnyere:

Mwakpo phishing - Mgbasa "Phishing" ma ọ bụ "spear phishing" na-ejikarị njikọ ma ọ bụ mgbakwunye na e-mail ma ọ bụ na mgbasa ozi ọha(social media) nke bu malware. Ozugbo mmadu metụrụ aka na njikọ ndị a, ha nwere ike imebi nnukwu ihe[87].

Smishing: A makwa smishing dị ka SMS-phishing, ọ bụ ụdị mwakpo social engineering nke a na-eme site na ozi SMS. Ndị aghụghọ na-agbalị ịghọgbu onye ọrụ ịmetu aka na njiko na-ebuga ha na websaiti ọjọọ na mwakpo a[88].

Vishing - Ụdị phishing nke a na-aghọgbu ndị mmadụ n'otu n'otu iji kpughee ozi dị mkpa site na ekwentị ma ọ bụ site na ozi olu.[89]

Baiting - Ụdị mwakpo social engineering nke ndị aghụghọ na-ewere ihe bara uru nye onye ha na-achọ ighọgbu ka onye ahụ nye ha ozi nke onwe dị mkpa. Ịma atụ, onye ahụ nwere ike nweta ozi-email na-ekwe ha nkwa kaadị onyinye efu ma ha metụ aka na ịpị njikọ.[90]

Pretexting - Ụdị mwakpo social engineering ebe ndị omempụ cyber na-eṅomi ebe ma ọ bụ ndị a pụrụ ịtụkwasị obi iji mee ka ndị ha chọrọ ighọgbu kesaa ozi bara uru ma ọ bụ ozi dị ezigbo mkpa[91].

Mwakpo 'domain' adịgboroja

Domain adịgboroja bụ webụsaịtị ndị e mepụtara ka ha dị ka ndị ziri ezi ka e were ha mee ihe ọjọọ. Ndị mgbasa ozi nọọrọ onwe ha na webụsaịtị ọha mmadụ na-abụkarị ndị ihe metụtara. Websaịtị adịgboroja na-ezipu malware ma ọ bụ bipụta ozi ụgha na mbọ iji mebie websaịtị mgbasa ozi ziri ezi ma ọ bụ ọrụ otu onye nta akụkọ.

Mwakpo Man-in-the-Middle (MitM)

Mwakpo Man-in-the-Middle bụ mwakpo cyber nke onye mwakpo nwere ike ijichi ozi dị n'etiti mmadụ abụọ ma ọ bụ karịa bụ ndị kwenyere na ha onwe ha na-ezikorịta ozi[92]. Dịka ọmụmaatụ, a na-eme wireless router ka ọ rụọ ọrụ dịka Wi-Fi hotspot n'ebe mepere emepe, iji duhie ndị mmadụ iche na ọ bụ ihe ziri ezi. Mgbe ndị mmadụ jikọrọ na ya, onye aghụghọ ahụ nwere ohere ịnweta data na-agafe na router ozugbo.

Mwakpo Distributed Denial of Service (DDoS)

Mwakpo ndị a bụ ihe a na-ahụkarị. Ọ bụ mwakpo ebe a na-eji otu kọmputa ma ọ bụ karịa na njikọ ịntanetị wụjuo ozi na server, nke na-eme ka ndị ọzọ ghara ịnweta server ahụ. Na webụsaịtị mgbasa ozi, mwakpo ndị a na-egbochi ozi ịrute ọha aka ma bụrụ ihe nwere ike ifu ezigbo ego, maka ọnụọgụgụ ndị ọbịa na webusaiti na-agbada tinyere na a ga-achọ enyemaka teknụzụ imezi ya.

Nsogharị Cyber

Iji ịntanetị ma ọ bụ ụzọ eletrọnịkị ọzọ iji sogharia ma ọ bụ kpagbuo mmadụ, otu ma ọ bụ ụlọ ọrụ. O nwere ike ịgụnye ebubo ụgha, nkwutọ, na izisa ozi ụgha. O nwekwara ike ịgụnye nsoghari

87 https://www.exabeam.com/information-security/cyber-security-threat/
88 https://www.aura.com/learn/types-of-social-engineering-attacks
89 https://www.exabeam.com/information-security/cyber-security-threat/
90 https://www.aura.com/learn/types-of-social-engineering-attacks
91 https://www.aura.com/learn/types-of-social-engineering-attackshttps://www.aura.com/learn/types-of-social-engineering-attacks
92 https://www.eccouncil.org/cybersecurity-exchange/penetration-testing/man-in-the-middle-attack-mitm/

onyunyo, izu ohi njirimara mmadu, iyi egwu, imebi ihe, ma ọ bụ ịchịkọta ozi e nwere ike iji yie egwu, mee ihere ma ọ bụ kpagbuo mmadu.

Mmegbu cyber

Iji ụzọ eletrọnịkị dị ka e-mail, mgbasa ozi ọha, ozi ngwa ngwa na ụdị nzikọrịta ozi ịntanetị ndị ọzọ n’ebumnobi imejọ, iyi egwu, ma ọ bụ ịnapụ mmadụ ma ọ bụ otu ike.

Ụzọ e nwere ike iji gbochie ihe iyi egwu dijital

Site na-igba obere mbọ, I nwere ike ichekwa kọmpụta gị wee nyere aka gbochie nsogbu ndị ka nnukwu. Usoro ndị a ga-egbochi mwakpo ma ọ bụ wepu nje virus ma ọ bụrụ na kọmputa bute nje a:[93]

- Tinye ngwa mgbochi nje (Antivirus software): Ngwa mgbochi malware na-enyere aka ịchọpụta ma wepụ malware dị na kọmputa gị ma ọ bụ ekwenti gị.
- Gbaa mbọ hụ na ngwa niile bu nke e budatara ọhụrụ. Ngwa ochie nke na-enweghị nchekwa kacha ọhụrụ na-eme ka ha nwee ike ibute malware.
- Belata mmepe network file e kesasịrị ekesasị. Naanị kwe ka ọkwa ohere mbanye bụrụ nke ọrụ azụmahịa onye ọrụ chọrọ. Ibeleta nnweta oke file netwọk ga-egbochi ngwaọrụ nwere ọrịa ransomware ịgbasa ya na ngwaọrụ ndị ọzọ dị na netwọk ahụ.
- Emepekwala ma ọ bụ rụọ ọrụ na mgbakwunye ị maghi ebe o si.
- Gbanyụọ ebe preview na ngwaọrụ gị maka nchebe sikwuru ike.
- Gbanyụọ atụmatụ program ọ bụla nwere ike imepe email, ozi ngwa ngwa, file mgbakwunye ma ọ bụ mbudata ozi na-akpaghi aka.

2.2

Ịdị ọcha nke dijital

Iji kwado nchekwa dijital nke ndị nta akụkọ, ndị na-agbachitere ikike dijital na ndị ọrụ intaneti ndị ọzọ, e nwere ọtụtụ usoro ịdị ọcha dijital iji nyere aka kwụsị ihe iyi egwu na ihe ima aka dijital.

Ịdị ọcha dijital (ma ọ bụ ịdị ọcha cyber ma ọ bụ ịdị ọcha intaneti) bụ njide-okwu ihe niile gbasara omume metụtara ihicha na idowe ụwa dijital anyị ọcha. Nke a gụnyere ihe niile site na ịhazi file dị na ngwaọrụ dijital gị ruo na ichekwa njirimara dijital gị na data metụtara ya. Ọ gụnyekwara iwunye ngwa ọhụrụ ma ọ bụ teknụzụ iji mee ka ndụ dijital gị dịkwuo mfe ma nwekwuo nchebe.

Site na ichekwa ozi ị na-ekerịta n’intaneti na/ma ọ bụ ichekwa ngwaọrụ ndị ị na-eji arụ ọrụ, ị na-ebelata ohere nke ibuso gị ọgụ na nha mmebi ọgụ e busoro gi. Ihe ọbụla i biputere n’intaneti nwere ike ịghọ isi ozi ma ọ bụ ozi nke onye na-eme ihe ọjọọ ga-eji wepụta ihe aghụghọ ma ọ bụ mwakpo cyber megide gị. Dịka onye na-eme ihe gbasara ikike dijital, ezigbo omume ịdị ọcha dijital bụ isi ihe na-echekwa gị na intaneti.

Ụfọ isiokwu a depụtara ụfọdụ ihe dị mfe i nwere ike ime, na-azụtaghị teknụzụ dị oke ọnụ ma ọ bụ tinye oge dị ukwuu n’ịhazigharị netwọkụ ụlọ gị, iji mee ka intaneti kọmputa gị dị na nchebe.

2.3.

Paswodu

Ọ bụrụ na ị na-achọ ụzọ isi wulite nchekwa cyber gị, nchekwa paswodu bụ ebe ị ga-amalite. Paswodu bụ usoro nchekwa nke nwere passphrase nzuzo e mepụtara site na iji mkpụrụedemede, ọnụọgụgu, mkpụrụedemede na ọnụọgụgụ na akara, ma ọ bụ ngwakọta ha niile. A na-eji usoro nchekwa a machibido ịbanye na system, ngwa ma ọ bụ ọrụ nye naanị ndị ọrụ bugoro ya n’isi na/ma ọ bụ ndi nwere ikike iji ya.

Ọkọlọtọ omume nchekwa dijital gụnyere

93 https://it.osu.edu/security

imepụta paswodu siri ike, itinye paswodu naanị otu ebe, iji ihe ndị bekee na-akpọ passphrases na multi factor authentication, iji nlezianya tụlee ajụjụ nrụghari paswodu, edetughi paswodu, na nke ikpeazụ, iji ngwa njikwa paswodu.

Ngwa mmeputa paswodu

Ngwa mmepụta paswodu bụ ngwa software na-emepụta paswodu ọbụla ọ chọrọ ma ọ bụ paswodu nke a haziri maka ndị ọrụ. Ọ na-enyere ndị ọrụ aka ịmepụta paswodu sikwuru ike nke na-enyekwu nchekwa maka ụdị ohere e nyere.

Ngwa mmepụta paswodu na-enyere ndị ga-eweputarịrị paswodu ọhụrụ kwa mgbe kwa mgbe aka iwepụta paswodu ọhụrụ mgbe niile iji hụ na ha nwetara ike ibanye na program ma jikwaa ọtụtụ paswodu maka njirimara na njikwa iru aka.

Ngwa njikwa paswodu

Igwe njikwa paswodu bụ ngwaọrụ na-emepụta ma na-echekwa paswodu ka e nwee ike iji ọtụtụ paswodu dị iche iche na site na ọrụ dị iche iche na-enweghi mkpa iburu ha n'isi.

Ngwa njikwa paswodu

- Meputa paswodu siri ike nke mmadụ enweghi ike icheputa
- Chekwaa paswodu ole n'ole (na aziza ajuju nchebe) ebe kpuchiri ekpuchi
- Were otu okwu single master password (ma o bu passphrase) chebee paswodu niile.[94]

Ọ bụrụ na kọmpụta gị ma ọ bụ ngwaọrụ gị emebie spyware abata n'ime ya, spyware ahụ nwere ike ile ka ị na-edenye isi paswodu gị ma nwee ike izuru ihe dị na njikwa paswodu. Ya bụ na ọ ka dị ezigbo mkpa idobe kọmpụta gị na ngwaọrụ ndị ọzọ ọcha malware mgbe ị na-eji njikwa passwoodu arụ ọrụ.

Marakwa!

Iji ngwa njikwa paswodu arụ ọrụ dị ka itinye akwa gị niile n'ime otu nkata ma were ndụ gị niile chebe ha. Ihe iyi egwu dị na ngwa njikwa paswodu a wakporo awakpo bụ na a banye na 'nkata' a, ọ pụtara na 'akwa' gị niile abanyela n'aka ndị ọjọọ .

Ijikọrịta passwoodu gaa na ngwaọrụ dị iche iche[95]

Ọtụtụ ngwa njikwa paswodu na-enye ohere inweta paswodu ngwaọrụ dị iche iche site na ihe njikọrịta paswodu. Nke a pụtara na e jikọọta file paswodu na otu ngwaọrụ, ọ ga-adikwa na ngwaoru ndị ọzọ na-akpaghị aka. Ngwa njikwa paswodu nwere ike chekwaa paswodu "na cloud" nke pụtara izo ya ezo na server dịpụrụ adịpụ. Mgbe a chọrọ paswodu ndị a, ngwa njikwa a ga-eweghachite ma mepee[96] paswodu ndị a na-akpaghị aka. Ngwa njikwa paswodu ndị na-eji server nke ha na-echekwa ma ọ bụ jikọrịta paswodu na-adi mfe karịa, mana ha na-adịkwa mfe ịwakpo. Ọ bụrụ na e chekwara paswodu na kọmpụta nakwa na cloud, ọ dighị mkpa ka onye na-awakpo gbapee kọmputa ahụ iji chọpụta paswodu. (Ọ ga-adi ha mkpa igbape 'passphrase' nke ngwa njikwa paswodu n'agbanyeghi nke a) Ọ bụrụ na nke a metụtara gi, ejikọrịtala paswodu na cloud, kama họrọ ịchekwaa ha naanị na ngwaọrụ gi.

Marakwa!

Dobe backup, nke bu ebe ọzọ e deputasịrị ozi gbasara paswodu ndị a, maka adịghị ama ama. Inwe backup dị mkpa ma ọ bụrụ na ozi gbasara paswodu fuo na mkpọka system, ma ọ bụ ma ewepụ ngwaọrụ. Ngwa njikwa paswodu na-enwekari ụzọ ha si eme-pụta file backup, ma ọ bụ mmadụ ejiri usoro backup nke dị adị mee ya.

Ụdị mwakpo paswodu a na-ahụkarị

94 https://ssd.eff.org/glossary/passphrase
95 https://ssd.eff.org/en/module/creating-strong-passwords#3
96 https://ssd.eff.org/glossary/decrypt

Otu n'ime ụzọ kachasị mfe na nke a na-ahụkarị iji wakpo account mmadụ bụ ịnwale[97] paswodu ndị a na-ahụkarị ma ọ bụ mee ntakịrị nnyocha banyere onye e bu n'obi iwakpo wee nwalee ụfọdụ paswoodu metụtara onye ahụ. Akụkọ Cybernews nke e dere na 2024 kpughere na paswodu iri nke ndị mmadụ na-ejikarị na nke a na-awakpokarị bụ:

1. 123456
2. 123456789
3. qwerty
4. password
5. 12345
6. qwerty123
7. 1q2w3e
8. 12345678
9. 111111
10. 1234567890

Ndị a bụ paswodu enweghị nchebe MA OLI. Ha dị mfe icheputa. Ndị omempụ cyber ga-amalite ịnwa ịbanye account nwere paswodu adịghị ike dị ka ndị a.

Ejikwala paswodu nwere ozi ndị a:

- Aha gị ma ọ bụ aha ndị ezinaụlọ na enyi gị
- Ụbọchị ọmụmụ gị, ma ọ bụ nke ndị ezinaụlọ na enyi gị
- Aha ụmụ anụ ụlọ gị na
- Aha ebe ndị i bi ma ọ bụ ebe ndị i biburu, nke gụnyere aha obodo ma ọ bụ aha ụzọ.

Ọ bụ ihe ịtụnanya ozi ole gbasara mmadụ dị na intaneti. Ọ bụrụ na paswodu gị nwere ozi gbasara gị n'ụzọ e nwere ike ịmata ya na intaneti ma ọ bụ site n'ịgwa ndị enyi gị okwu, ọ ga-adị mfe ichepụta ya.

Mwakpo Brute Force

Mwakpo Brute Force na-anwa ngwakọta mkpụrụedemede ọbụla o nwere ike ruo mgbe ọ chọtara nke bu ya. Ụdị mwakpo a na-arụ ọrụ nke ọma na paswodu dị mkpụmkpụ ma na-enwekwa ike awakpo paswodu ndị nwere mkpụrụedemede enweghị usoro. Mana ogologo dị mkpa. Mwakpo ike adịghị arụ ọrụ nke ọma. Ọ bụrụ na paswodu gị toro ogologo, o nwere ike ọ gaghị ekwe mwakpo. Lee tebụl na-egosi oge ọ ga-ewe iji chọpụta paswodu dị na file nwere mwakpo ike, site na ogologo paswodu ya na mgbagwoju anya ya. Buru n'uche na tebụl a na-eche na kọmputa nwere ike ịnwale ihe karịrị paswodu puku kwa nkeji.

Ogologo paswodu	Mkpụrụokwu niile	Naanị
Mkpụrụokwu 3	Timtim 0.86	Timtim 0.02
Mkpụrụokwu 4	Nkeji 1.36	Timtim 0.46
Mkpụrụokwu 5	Awa 2.15	Timtim 11.9
Mkpụrụokwu 6	Ụbọchị 8.51	Timtim 5.15
Mkpụrụokwu 7	Afọ 2.21	Awa 2.23
Mkpụrụokwu 8	Afọ narị 2.10	Ụbọchị 2.42
Mkpụrụokwu 9	Puku afọ 20	Ọnwa 2.07
Mkpụrụokwu 10	Puku afọ 1,899	Afọ 4.48
Mkpụrụokwu 11	Puku afọ 180,365	Afọ narị 1.16
Mkpụrụokwu 12	Puku afọ 17,184,705	Puku afọ 3.03
Mkpụrụokwu 13	Puku afọ 1,627,797,068	Puku afọ 78.7
Mkpụrụokwu 14	Puku afọ 154,640,721,434	Puku afọ 2,046

Ile anya ị ga-ahụ na oge ọ ga-ewe iwakpo paswodu na-abanwanye nnukwu dịka a na-etinye mkpụrụokwu. Maka paswodu nke nwere mkpụrụokwu enweghị usoro nke ụdị niile, ọdịiche dị n'etiti mkpụrụokwu 6, 7, 8 na 9 bụ ụbọchị, afọ, narị afọ na puku afọ! Ọzọkwa, lee ogologo oge ọ na-ewe iji wakpoo paswodu nwere ụdị mkpụrụokwu niile ma were ya tụnyere paswodu nke otu ogologo ahụ nke nwere naanị mkpụrụokwu obere.

Ịmepụta na idobe passwodu siri ike e chekwara echekwa

97 https://edition.cnn.com/2019/04/22/uk/most-common-passwords-scli-gbr-intl/index.html

Ijigharị paswodu ugboro ugboro bụ omume nchekwa jọgburu onwe ya. Ọ bụrụ na onye mwakpo jide paswodu nke ejirila n'ọtụtụ ọrụ, ha nwere ike ịbanye n'ime ọtụtụ account gị. Nke a bụ ihe mere inwe ọtụtụ paswodu siri ike ma pụo iche jiri dị oke mkpa. Nke ọma bụ na ngwa njikwa paswodu nwere ike inye aka.[98]

Ndụmọdụ maka ịmepụta paswodu siri ike:

- Jiri ngwakọta mkpụrụokwu ndị ukwu na ndị nta, ọnụọgụgụ na akara.
- Paswodu siri ike kwesiri inwe mkpụrụokwu site asatọ ruo iri na abụọ.
- Ejikwala ozi gbasara gi eme paswodu.
- Gbanwe ya kwa mgbe kwa mgbe.
- Ejikwala ya emepe ọtụtụ account
- Jiri multi-factor authentication.

E nwere paswodu ole n'ole i kwesịrị iburu n'isi ndi kwesịkwara isi ezigbo ike. Paswodu ndị a gụnyere:

- Paswodu ngwaọrụ gị
- Paswodu e ji eme encryption (dika full disk encryption)[99]
- Paswodu isi,[100] ma o bu "passphrase"[101] nke ngwa njikwa paswodu gị
- Paswodu ozi email gị[102]

Iji Dice emeputa Paswodu siri ike

Otu n'ime ọtụtụ ihe na-esi ike mgbe ndị mmadụ na-ahọrọ paswodu n'onwe ha bụ na ndị mmadụ amachaghị ka e si eme nhoro na-enweghi usoro na nke mmadu agaghị akotanwu[103]. Ụzọ dị irè nke ịmepụta paswodu siri ike na nke agaghị echefu[104] bụ iji Dice na ndepụta okwu[105] iji họrọ okwu enweghi usoro. Ejikọta ha ọnụ, okwu ndị a na-abụ "passphrase" gị. "Passphrase" bụ ụdị paswodu nke dị ogologo maka nchekwa sikwuru ike. Maka nzuzo diski na njikwa paswodu gị, anyị na-akwado ịhọrọ opekampe mkpụrụ okwu isii.

Gịnị mere a ga-eji họrọ opekampe mkpụrụ okwu isii? Gịnị mere a ga-eji jiri dice họrọ mkpụrụokwu enweghi usoro?

Ka paswodu na-adị ogologo ma buru nke enweghi usoro, ka ọ na-esiri ma kọmputa ma ụmụ mmadụ ike icheputa ya. Iji chọpụta ihe mere ị ga-eji chọọ ogologo paswodu siri ike, nke a bụ nkọwa video[106]:

2.4

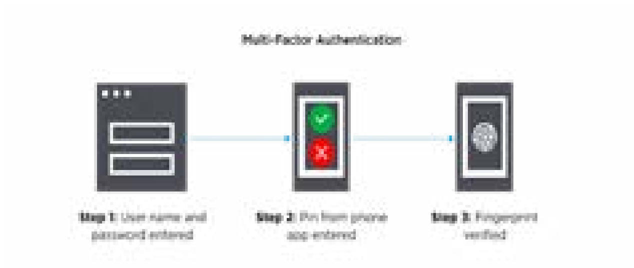
Nkwenye ọtụtụ ụzọ (MFA)

Paswodu siri ike, pụrụ iche na-eme ka ọ na-esiri ndị aghụghọ ike ịbanye na account dijital. Iji chekwakwuo account dijital gị, mee nkwenye ọtụtụ ụzọ (MFA).[107]

MFA bụ atụmatụ nchekwa nke ọtụtụ webụsaịtị, ngwa na ngwaọrụ na-enye nke na-eme ka nchekwa account sie ezigbo ike. N'okwu teknụzụ, MFA bụ system ebe e nwere ihe karịrị ụdị nkwenye abụọ.

Ụzọ MFA si arụ ọrụ

98 https://ssd.eff.org/en/glossary/password-manager
99 https://ssd.eff.org/en/glossary/encryption
100 https://ssd.eff.org/glossary/master-password
101 https://ssd.eff.org/en/glossary/passphrase
102 https://ssd.eff.org/en/glossary/password
103 http://people.ischool.berkeley.edu/~nick/aaronson-oracle/
104 https://www.eff.org/deeplinks/2016/07/new-wordlists-random-passphrases
105 https://www.eff.org/deeplinks/2018/08/dragon-con-diceware
106 https://ssd.eff.org/en/module/animated-overview-how-make-super-secure-password-using-dice
107 https://ssd.eff.org/en/glossary/two-factor-authentication



Ọ bụrụ na i nwere MFA a rụrụ maka account a kpọrọ aha (webụsaịtị, ngwa ma ọ bụ ngwaọrụ), mgbe i ji aha njirimara na paswodu gị banye n'ime ya, server nke account ahụ ga-ajụ gị maka ụdị nnyocha nke abụọ nọrọ onwe ya tupu ọ hapụ gị ka ị banye na system. Ọ dị ka mgbe e mepere account ụlọ akụ wee jụọ ka ha hụ ID foto na ụdị njirimara ọzọ, dịka kaadị social security ma ọ bụ paspọtụ mba ụwa. Ọ ga-esiri gị ike ime ka à ga-asị na ị bụ onye ị na-abụghị mgbe ị ga-eji ụzọ abụọ dị iche iche gosi onye ị bụ.

Ụzọ e si eme MFA

Anyị na-akwado itinye MFA na opekampe ngwaọrụ abụọ, ya bụ ọ bụrụ na otu ngwaọrụ efunahụ gị, i nwere ike ichebe onwe gị site na ihichapụ data ya ozugbo wee jiri ngwaọrụ ọzọ mepee ya. Site na MFA, e nwere ike ime nkwenye nke abụọ site na iji otu n'ime ụzọ dị iche iche.

Ụzọ ndị a na-ahụkarị gụnyere:

Ụzọ "push notification" ekwentị

Ụzọ kachasị ewu ewu iji nweta ụdị nkwenye nke abụọ bụ site na "push" gaa na application dị na ngwaọrụ ekwenti gị. Site na ụzọ a, account server nke ị na-achọ ịbanye ga-eziga ozi na ngwaọrụ ekwenti gị. Ozi ahụ ga-apụta na ekwentị wee kwuo ihe dịka, "Lee, mmadụ na-achọ ịbanye na webụsaịtị a, ọ bụ gị? Ànyị kwesịrị ikwe ka ha bata?" A na-enwekarị button na-acha green na nke nnukwu na-acha red ka i nwee ike ịza "Ee" ma ọ bụ "Mba". Ọ bụrụ na ị pịa "Ee", ị banye. Ma ọ bụrụ na ọ bụghị gị zipụrụ arịrịọ mbanye mbụ, ị mara na mmadụ ji paswodu gị ma na-agbalị ịbanye na account gị. Ị nwere ike pịa button "Mba" ka e gbochie mbata ha. I neziri ike ịga banye n'onwe gị wee gbanwee paswodu gị ka onye mwakpo ahụ laghachị azụ bido n'isi.

Ọ dị mfe, ma bụrụkwa usoro nchekwa siri ezigbo ike. Isi uru dị na usoro a bụ na ọ bụghị naanị na onye na-awakpo ga-akụsa paswodu gị, kamakwa ọ ga-ejideriri ngwaọrụ ekwenti gị n'aka tupu o nwee ike ịbanye na ngwaọrụ ahụ. Olileanya na ihe ndị ahụ niile ga-eme dị ala ma ọ bụrụ na i nwere okwuntughe dị mma ma na-echekwa ekwentị gị nke oma. Uru ọzọ dị na usoro a bụ na ị ga-enweta ozi mgbe mmadụ na-achọ ịbanye na account gị na-enweghi ikike, nke ga-enye gị ohere ịzaghachi ngwa ngwa site na ịgbanwe paswodu gị.

Ngwa app nkwenye ekwenti

Mgbe ụfọdụ, account server agaghị ezitere gị push notification mana o nwere ike ịgwa gị ka ị pịnye code pụrụ iche nke ngwa authenticator mepụtara na ngwaọrụ ekwenti gị. Code ndị a dị mkpụmkpụ (ihe dị ka ọnụọgụgụ isii ma ọ bụ karịa) ya mere o nwere ike ịdị ka ha enweghị nchekwa. Ihe dị mma bụ na a na-emepụtaghari code ndị ahụ kwa nkeji ma ọ bụ karịa. Ọzọkwa bụ na ha dabere na algọrithim nke naanị ngwa authenticator gị na account server ị na-achọ ibanye mara. Ọ ga-esiri onye omempụ cyber ezigbo ike ịmata code ọnụọgụgu isii n'ọnọdụ ndị ahụ ebe ọ bụ na oge dị mkpụmkpụ. Ọzọ, isi uru dị ebe a bụ na onye mwakpo ahụ ga-enwerịrị ike ijide ngwaọrụ ekwenti gị n'aka ma nwekwa ikike ịbanye na ya. Otu ọghọm dị na ya bụ na ị naghị enweta ozi ọbụla ozugbo ma ọ bụrụ na mmadụ nwaa ịbanye na account gị. Ọtụtụ mgbe usoro a bụ usoro ozo a na-emekwa dị ka nkwado push method. Ọtụtụ ngwa nkwenye authenticator ga-akwado ụzọ abụọ a.

Ụzọ SMS code

Usoro a na-ejikwa ekwentị gị mana ọ naghị eji ngwa application. Ya mere, ọ na-arụ ọrụ na ekwenti na-abụghị smartphones. Ọ bụrụ na i tinye usoro MFA a, mgbe i ji aha njirimara na paswodu gị wee banye, account server ga-ezigara ekwentị gị ozi e derede nke nwere code i ga-eji abanye otu oge. Ị ga-apịnye code ahụ n'ime webụsaịtị ma ọ bụ portal ngwaọrụ ebe ị tinyere paswodu gị. Nke a nwere uru niile nke usoro "push", sọọsọ na ọ dịchaghị oke mfe n'ihi na ị ga-edenye code ahụ. Ị ga-enweta ozi ozugbo nke mgbalị nbanye, nwetakwa ozi ederede kwa mgbalị. Otu ọghọm bụ na ọ bụghị iwu na onye mwakpo ga-abanye na ekwentị

gị. Ha kwesịrị ijide ekwentị ahụ n’aka maka ozi ederede na-apụtakarị na ihu enyo ekwentị, ọbụlagodi mgbe akpọchiri ekwentị akpọchi.

Ụzọ Email code

Usoro a na-arụ ọrụ nke ukwuu dị ka usoro code SMS, ma ewepu na a na-eziga code ahụ na account email nke i debanyere aha ya na server account ị na-achọ ịnweta. Ị ga-edozi nke a mgbe i debanyere aha gị ịnata ngwa multi-factor. Ọ bụrụ na ị ga-eji ụdị MFA a, ị ga-agba mbọ hụ na account email gị bu nke echekwara echekwa, nke pụtara na ị ga-enwe MFA maka ịbanye na account email gị. Ihe kpatara ya bụ na e nwere ike ịlele email site na ebe ọbụla, gụnyere otu ọdụ kọmputa ebe onye mpụ cyber na-anwa ịbanye na account gị. Ikwu ya n’ụzọ ọzọ, ọ dighị mkpa ka onye mwakpo nọrọ nso ngwaọrụ ọ na-achọ iwakpo n’usoro a. Ọ bụ ya mere ị ga-eji nwee paswodu siri ike maka email gị nke I dịghị eji ebe ọbụla ọzọ. Ọ bụrụ na i mee nke ahụ, usoro a ga-achọrịrị ka onye mwakpo mara paswodu gị abụọ. N’agbanyeghị nke a, ịmanye ha ka ha banye na ngwaọrụ ọzọ bụ nhọrọ sikwuru ike ma dịkwuo nchebe. Ọ bụrụ na webụsaịtị na-enye naanị ụdị MFA a ohere, nke ahụ dị mma. Gaa n’ihu tinye ya, rịọzie maka nkwenye authentication na ngwaọrụ ekwenti gị maka ịbanye na email gị.

Token e ji n’aka

Usoro a na-ewubu ewu karịa tupu ọbịbịa nke smartphones. Token e ji n’aka bụ obere ngwaọrụ na-emepụta code oge ọbụla n’otu ụzọ ahụ ngwa authentication na ngwaọrụ ekwenti gị ga-esi mee ya. Ọ na-arụkwa ọrụ ma o nwere ọghọm na ị ga-amariri ebe ngwaọrụ nke ọzọ di. Ụbọchị ndị a, ndụ anyị jikọtara na ekwenti anyị. I nwere ike iche ka ọ ga-adi ma i tufuo token, ma na-agagharị amaghị na o fuola. Ọ bụrụ na ị nwere otu n’ime ndị a, debe ya na ebe e chekwara echekwa. Ọ bụrụ na ị ga-eji ya agaghari, ikekwe tinye ya na igodo keychain gị.

Nnyocha Biometric

Biometric MFA na-adabere na njirimara anụ ahụ ma ọ bụ omume pụrụ iche nke onye ọrụ, dị ka njirimara ihu, nnyocha mkpịsị aka, nnyocha mkpụrụ anya, njirimara olu, wdg. N’ihi na onye ọbụla nwere akara mkpisiaka na ihu pụrụ iche, nke a nwere ike inye ezigbo nchekwa. A na-ejikarị biometrics dị ka MFA maka ngwa app nwere data dị ezigbo mkpa.

Biometric MFA nwere ike imesikwu onye ọrụ obi ike na onye ọrụ bụ onye ha na-ekwu na ha bụ, ebe ọ bụ na data biometric siri ike imepụta adigboroja, izu, ma ọ bụ icheputa karịa paswodu ma ọ bụ token. N’agbanyeghị nke a, ọ nwekwara ọghọm nke ya, dị ka nsogbu nzuzo ‘privacy’. System nnyocha biometric na-echekwa ozi dị ezigbo mkpa. Ọ bụrụ na ozi a dabara na aka onye ọjọọ, e nwere ike iji ya mee izu ohi njirimara ma ọ bụ ebumnuche ọjọọ ndị ọzọ. N’agbanyeghị nsogbu ya, nnyocha biometric bụ ihe a pụrụ ịdabere na ya ma sikwuo ike iwakpo karịa ụdị nkwenye authentication ndị ọzọ. Ozokwa, e nwere ụzọ ndi a ga-esi belata ihe egwu ọbụla nwere ike ime site na iji nlezianya na-emejuputa usoro nchebe siri ike site na iji MFA, nke na-ejikọta biometrics na ụzọ nkwenye ndị ọzọ iji nye nchekwa sikwuru ike.

2.5.

Nkwenye ụzọ abụọ (2FA)

Two factor authentication (nkwenye ụzọ abụọ) bụ ụdị, ma ọ bụ mgbakwunye, nke MFA. Ọ bụ ụzọ isi mee ka ndị ọrụ mara onwe ha nye ndị na-enye ọrụ site n’ịchọ ngwakọta nke ụzọ nkwenye abụọ dị iche iche. Ndị a nwere ike ịbụ ihe onye ọrụ maara (dịka paswodu ma ọ bụ PIN), ihe onye ọrụ nwere (dị ka akara token ma ọ bụ ekwentị), ma ọ bụ ihe ejikọtara ma ọ bụ enweghị ike ikewapụ n’ahụ onye ọrụ (dị ka akara mkpịsị aka ha).

Kedu ka 2FA si arụ ọrụ na intaneti?

Ọtụtụ ahiaọrụ ịntanetị - gụnyere Facebook, Google, na X - na-enye 2FA dị ka ụzọ ọzọ e nwere ike iji karia nkwenye naanị paswodu. Ọ bụrụ na ịmebe atụmatụ a, a ga-akpali gị tinye paswodu na usoro nke abụọ nke nnyocha. Usoro nke abụọ a na-abụkarị code SMS zitere ma ọ bụ code otu oge nke ngwa ekwenti na-echekwa ihe nzuzo (dị ka Google Authenticator, ma ọ bụ Duo Mobile) zitere. N’ọnọdụ ọbụla, ihe nke abụọ bụ ekwentị gị, ihe ị na-ejikari n’aka. Ụfọdụ webụsaịtị (gụnyere Google) na-akwadokwa ndị a na-akpọ single use back

up codes, nke e nwere ike ibudata, ibipụta na akwụkwọ, ma chekwaa ya na ebe nchekwa dị ka nkwado ndabere ọzọ. Ozugbo i ji 2FA banye, ị ga-etinye paswodu gị na code otu oge nke sitere na ekwentị gị iji banye na account gị.

Gịnị mere ị ga-eji mebe 2FA?

2FA na-enye gị nchekwa account sikwuru ike site n'ịchọ ka i jiri ihe karịrị otu ụzọ nyochaa njirimara gị. Nke a pụtara na, ọbụlagodi na mmadụ nwetara isi paswodu gị, ha enweghị ike ibanye na account gị ọ gwụla ma ha jikwa ekwentị gị ma ọ bụ ụzọ nnyocha ọzọ.

O nwere oghom di na iji 2FA arụ ọrụ?

N'agbanyeghi na 2FA na-enye ụzọ nyocha nke sikwuru ike, ihe ọghọm nke account gị ịkpọchi gị n'ezi di ya ma ọ bụrụ na, dịka ọmụmaatụ, ị tufuru ekwentị gị ma ọ bụ dojọọ ya, ị gbanwere kaadị SIM[108] gị ma ọ bụ gaa obodo ozo na-agbanyeghi roaming. N'otu aka ahụ, iji 2FA pụtara na i nwere ike na-enyefe ozi nye ahiaọrụ karịa ka ọ dị gị mma. Ka e were ya na ị na-eji X, wee debanye aha ọzọ dịka aha gị.[109] Ọ bụrụgodu na i jiri nlezianya zere ịnye X ozi njirimara gị, wee na-abanye n'ọrụ ahụ naanị site na Tor ma ọ bụ VPN[110], ọ bụrụhaala na ị mebere SMS 2FA, X ga-enwerịrị ndekọ nke nọmba ekwentị gị. Nke ahụ pụtara na ọ bụrụ na ụlọ ikpe manye ya, X nwere ike iji nọmba ekwentị gi mata ma jikọọ account gị. Nke a nwere ike ọ gaghị abụ nsogbu ma ọ bụrụ na i tinyere aha iwu gị ebe ahụ, mana ọ bụrụ na ị chọghị ka amata aha gị, chee echiche ugboro abụọ maka iji SMS 2FA.

Universal Factor Authentication

Universal authentication bụ nkwenye zuru ụwa ọnụ, nke a makwaara dịka otu nbanye (SSO), bụ usoro nkwenye njirimara netwọk nke na-enye ndị ọrụ ohere ịgagharị site na site gaa na site na nchekwa na-etinyeghi ozi njirimara ọtụtụ oge. Site na universal authentication onye debanyere aha na-etinye otu ụzọ usoro (dịka aha njirimara na paswodu) na mmalite nke nnọkọ netwọk ọbụla. A na-ewepụta data nnyocha maka site ọbụla a gara mgbe nke ahụ gasịrị na-akpaghị aka maka oge nnọkọ ahụ. Otu n'ime nnukwu nsogbu na nchekwa ịntanetị bụ na weebụsaịtị ọbụla nwere usoro nnyocha nke ya. Onye ọrụ intaneti nke nwere adreesị ozi-email abụọ ma ọ bụ atọ ma na akpọtụrụ ndị na-ere ahịa n'intaneti isii ịzụta ma ọ bụ ire ihe, ga-eburịrị ọtụtụ aha njirimara na paswodu n'isi. Nke a nwere ike isi ike ọ gwụla ma e deturu authentication data ahụ ma ọ bụ chekwaa ya dị ka text file, nke ga-aghọzi ihe nsogbu nchekwa. Universal authentication nwere ike iwepụ nsogbu a na-emebighị nchekwa ma ọ bụ nzuzo.

Marakwa! Ọ bụrụ na i nwee ohere ịhọrọ, họrọ ngwa authenticator ma ọ bụ ngwa a na-eji n'aka nọrọ onwe ya , kama ịnata code e zitere na ozi text message. Ọ dịrị onye mwakpo mfe izighariri code ndị a gaa na phone nke ya, karịa ka ọ dị ịgafe authenticator.

2.6.

Firewall

Firewall bụ usoro nchekwa netwọkụ nke na-echebe kọmputa site na njikọ achọghị nye ma ọ bụ site na netwọk mpaghara na ịntanetị, karịsịa intranet. E nwere ike ime firewall dịka software ma o bu hardware, ma ọ bụ ngwakọta ha abụọ. Firewall[111] nwere ike inwe iwu na-amachibido ozi-email na-apụ apụ, ma ọ bụ njikọ na weebụsaịtị ụfọdụ. E nwere ike iji firewall dị ka ụzọ nchebe mbụ iji chebe ngwaọrụ pụọ na mmanye aka na-atụghị anya ya. E nwekwara ike iji ha gbochie ndị ọrụ ịnweta intaneti n'ụzọ ụfọdụ.

108 https://ssd.eff.org/en/glossary/sim-card
109 https://ssd.eff.org/en/glossary/pseudonym
110 https://ssd.eff.org/en/glossary/vpn
111 https://ssd.eff.org/en/glossary/firewall

Firewall nke hardware na software

Firewalls nwere ike ịbụ hardware ma ọ bụ software mana nhazi kachasị mma ga-enwe ha abụọ. Tinyere na ọ ga-amachi ịbanye na kọmputa na netwọk gị, firewall na-abakwa uru maka ikwe ka onye ọrụ banye netwọk e zoro ezo site na asambodo nnyocha na nbanye.

E nwere ike ịzụta firewall hardware dịka ngwaahịa kwụụrụ onwe ya mana a na-ahụkarị ya na broadband router: e kwesịrị ka e were ya dịka ngalaba dị mkpa nke nchekwa system na ntọala netwọkụ gị. Ọtụtụ hardware firewall ga-enwe opekempe ebe ntinye netwok anọ iji jikọọ kọmpụta ndị ọzọ, mana maka netwọkụ buru ibu, ihe a na-akpọ business networking firewall solution dị.

A na-ewunye software firewall na kọmputa gị, dịka software program ọ bụla, ma i nwere ike hazie ya, nke ga-enye gị ohere ịchịkwa ọrụ ya na njirimara ya nche. Ngwa software firewall ga-echebe kọmputa gị pụọ na mbọ ndị ọzọ ijikwa ma ọ bụ nweta ohere ịbanye na kọmputa gị.

Firewall nwekwara ike ịbụ ngalaba nke system arụmọrụ kọmputa gị. Imaatu, Windows Firewall bụ ngwa Microsoft Windows na-eme ka ndị ọrụ mara omume ọbụla a na-enyo enyo. Ngwa ahụ nwere ike ịchọpụta ma gbochie nje virus, worm, na ndị mwakpo iji mee ihe ga-emebi system.

Usoro nhọcha Firewall

A na-eji firewall echebe netwọk ụlọ na ụlọ ọrụ. Otu ngwa firewall ma ọ bụ ngwaọrụ hardware na-enyocha ozi niile na-esite na ịntanetị na-abia na netwọkụ ma ọ bụ system kọmputa gị. E nwere ụdị usoro firewall dị iche iche nke ga-egbochi ozi nwere ike imebi ihe ịgafe:

- Packet Filter: Packet filter na-ele packet [112] ọbụla na-abata ma o bu nke na-ahapu netwok nabata ya ma ọ bụ jụ ya site na iwu onye ọrụ mebere. Packet filter situru ike, ma dịrị ndị ọrụ mfe kama o siri ike ịrụ ya. Ọzọkwa bụ na ihe a na-akpọ IP spoofing na-emekarị ya.[113]
- Application Gateway: Application gateway na-eji ụzọ nchekwa dị iche iche tinyere ngwa application a kpọrọ aha, dịka server FTP[114] na Telnet[115]. Nke a siri ezigbo ike, mana o nwere ike ime ọrụ agaghị ọsịsọ.
- Circuit-level Gateway: Circuit level Gateway na-eji usoro nchekwa mgbe e jikọrọ TCP[116] ma ọ bụ UDP[117]. Ozugbo e mere njiko a, packet nwere ike site na otu host gaa na nke ọzọ na-enweghi uru ile ya anya ọzọ.
- Proxy Server: Proxy server na-ejichi ozi niile na-abata ma na-ahapu netwok. Proxy server[118] na-ezo ezi adressi netwok nke ọma.

Na omume, ọtụtụ firewall na-eji abụọ ma ọ bụ karịa n'ime usoro ndị a otu mgbe. A na-ewere firewall dịka usoro nchebe nke mbụ n'ichekwa ozi zoro ezo. Maka nchekwa sikwuru ike, e nwere ike ime ihe a na-akpọ data encryption.

2.7.

Encryption

Encryption bụ ịgbagha ozi n'ụzọ mathematics (encrypt), n'ụdị na ọ ga-adị ka o nweghị isi, mana onye ma ọ bụ ngwaọrụ nwere ihe a na-akpọ decryption key nwere ike iweghachi ya n'ụdị ọ dị na mbụ. Nke a na-amachi onye nwere ike ịnweta ozi ahụ n'ihi na ma enweghị igodo ziri ezi, ọ gaghị ekwe omume ịtụgharị ozi e zoro ezo wee nwetaghachi ozi mbụ ahụ. Encryption bụ otu n'ime teknụzụ dị iche iche mebere ngalaba a na-akpọ cryptography.

112 https://www.webopedia.com/TERM/P/packet.html
113 https://www.webopedia.com/TERM/I/IP_spoofing.html
114 https://www.webopedia.com/TERM/F/ftp.html
115 https://www.webopedia.com/TERM/T/Telnet.html
116 https://www.webopedia.com/TERM/T/Telnet.html
117 https://www.webopedia.com/TERM/U/User_Datagram_Protocol.html
118 http://ebopedia.com/TERM/P/proxy_server.html

End to end encrption na-ahụ na ozi bụ nke a gbanwere ka ọ bụrụ ozi nzuzo site n'aka onye na- ezipu ya mbụ, ma weghachi n'ụdị ọ dị na mbụ naanị site na onye nnata ikpeazụ ya. Ụdị encryption ndị ọzọ nwere ike ịdabere na nzuzo nke ndị ọzọ mere. Nke ahụ pụtara na ndị ọzọ ahụ bụ ndị a tụkwasịrị obi n'ihe gbasara ederede nke mbụ. A na-ahụta end to end encryption dịka ihe nwekwuru nchebe, n'ihi na ọ na-ebelata ọnụọgụgụ ndị nwere ike itinye aka ma ọ bụ mebie encryption ahụ.

2.8

Virtual Private Network (VPN)

VPN bụ usoro iji jikọọ kọmpụta na netwọkụ nke nzukọ di ebe ọzọ na ịntanetị n'ụzọ nwere nchekwa. Mgbe ejikọrọ komputa na VPN, data ihe nchọgharị web niile na-egosi na o sitere na VPN n'onwe ya, kama ịbụ site na intaneti onye ọrụ (ISP)[119]. Iji VPN na-ekpuchi adreesị IP[120] nke ISP gị kenyere site na site ndị ị na-enweta, na-agbakwụnye oyiri nzuzo. Tinyere ikpuchi adreesị IP gị, ọ na-ezochikwa data gị mgbe ị na-agafe na site ị na-abanye.

Commercial VPN

Commercial VPN bụ ahịa nkeonwe nke na-enye gị ike izipụ ozi intaneti gị n'enweghi nsogbu site na netwọk nke ha. Uru nke a bara bụ na data niile ị na-ezipụ ma na-anata zoro ezo n'anya netwọkụ dị gị nso, ya bụ na o chekwara echekwa n'anya ndị omempụ nọ nso, ISP ndị dị nso atụkwasịghị obi, ma ọ bụ onye ọbụla na-enyocha netwọkụ gị. E nwere ike iwunye VPN na mba ofesi, nke bara uru maka ichekwa nzikọrịta ozi sitere n'aka gọọmentị ime obodo, nakwa ịgafe mmachibido obodo. Ọghọm ya bụ na a na-emepe ozi traffic n'akụkụ nke commercial VPN[121]. Nke ahụ pụtara na i kwesịrị inwe ntụkwasị obi na commercial VPN a (na obodo ebe ọ dị) na ọ gaghị enyobata anya n'ozi gị. Ọ bụ ezie na commercial VPN nwere ike inye "nchekwa", mana ọ naghi ekwe nkwa ichekwa ọrụ gị.

Ọmụmatụ VPN ndị a bụ CyberGhost VPN,[122] NordVPN,[123] Private Internet Access VPN[124] na TunnelBear (nke na-enye nwale efu 2GB bandwidth).[125]

VPN efu

VPN efu bu ọrụ ahịa na-enye gị ike inweta netwok VPN server na software nke ga-abara gị uru, ma gị akwụla ụgwọ ọbụla. Ebe VPN efu nwere ike ime gị emefula ego, o nwekwara ike ịbụ ihe iyi egwu nke data gị ifulahu gị. Ọmụmatụ bu Windscribe VPN, nke bụ efu, ma nwekwa usotu bandwidth kwa ubochi 30.[126]

> *Marakwa! Tupu gị ahọrọ ọrụ ahịa VPN oge niile, gụọ ihe ndị ọrụ ndị jiburu ya rụọ ọrụ na-ekwu ka ị chọpụta nsogbu ha nwere. Ọzọkwa, leba anya oge niile na akụkọ gbasara ndị nwe ọrụ ahịa VPN ahụ , lee ebe ha nọ- i nwekwara ike ịchọ ịhapụ onye ahịa ọrụ ọbụla nọ na obodo usoro nchekwa ya edoghi anya.*

2.9

Mụta omume intaneti n'akwalite nchekwa

Lee ndepụta ihe omume na usoro nchekwa i nwere ike ibido ka i kpuchie data gị ma nwee ezi ọnọdụ nchekwa na internet:

- Gbaa mbọ hụ na system na software gị nwere ngwa kachasị ọhụrụ

119 https://en.wikipedia.org/wiki/Internet_service_provider
120 https://ssd.eff.org/en/glossary/ip-address
121 https://ssd.eff.org/en/glossary/commercial-vpn
122 https://www.cyberghostvpn.com/en_US/
123 https://nordvpn.com/
124 https://www.privateinternetaccess.com/pages/techradar
125 https://www.tunnelbear.com
126 https://windscribe.com/

- Gbaa mbọ nwee antivirus ọhụrụ na-arụ ọrụ.
- Gbanahụ aghụghọ phishing
- Nwee paswodu siri ike, ma ọ bụ ngwa njikwa paswodu
- Lezie anya, mara ihe ị na-api aka na intaneti. Websaiti ọjọọ nwere ike ijiko gị na ndị mpụ cyber na ndị ọjọọ.
- Ahapụkwala komputa gị ma ọ bụ ngwaọrụ gị na-enweghi onye na-ele ha anya. Gbanyụọ screen gị ma ị gawa ụlọ mposi. Komputa mepere emepe bụ imepe ụzọ e si aga na data gị.
- Kpuchite data gị.
- Maka file nke onwe gi niile, mee data gị backup! Ị maghị mgbe i nwere ike itufu hard drive gị, ma i ga-enwetaghachi data gi. E nwere ọtụtụ nhọrọ cloud storage, i nwekwara ike ime nke a na-akpo external drive. Tụlee ime data encryption tupu i chekwaa data gị na external drive ma ọ bụ na cloud.
- Ị na-azụ ahịa na intaneti, ma ọ bụ ị na-agbasa ozi dị ezigbo mkpa, hụ na ị na-ezipu ozi e mere nchekwa encryption site na ịchọ “https” ma ọ bụ akara nke yiri igodo padlock na address bar gị.
- Mara ozi ị na-ezipu (na nke i naghị ezipu) na social media.
- N’ihe, kpachara anya maka ihe a na-akpọ ‘social engineering attack’ dịka a kọwara n’elu.
- Gbaa mbọ leba anya na account ego na account social media gi maka ihe omume edoghi anya.

Ndumodu nchekwa cyber maka ịrụ ọrụ n’ụlọ

Telecommuting (Ịrụ ọrụ n’ụlọ), maka ihe ọbụla kpatara ya, nwere nsogbu nke ya n’ihe banyere iyi egwu cyber. A na-ahụkarịzị ịrụ ọrụ n’ụlọ dịka ndị mmadụ na ndị azụmahịa na-ejikwu teknuzu arụ ọrụ site ebe ọbụla ha nọ.

Lee ihe ndepụta na-egosi ụzọ ndị na-arụ ọrụ n’ụlọ nwere ike isi chekwaa ọrụ ha:

Ndụmọdụ nye ndị na-arụ ọrụ n’ụlọ:

- Jiri naani Wi-Fi ị tụkwasịrị obi rụọ ọrụ. Ọ bụrụ na njiko Wi-Fi bụ nke e chekwaghi echekwa, ndị mmadụ nọ nso nwere ike inyoba anya na traffic gị.
- Maka netwok ụlọ, zoo njikọ connection dị n’etiti ngwaọrụ gị na Wi-Fi router gị, dịka iji nke a na-akpọ WEP encryption algorithm[127].
- Jiri naanị ngwaọrụ ndị ụlọ ọrụ kwadoro rụọ ọrụ.
- Budata antivirus software ọhụrụ kwa mgbe kwa mgbe.
- Budata software ọhụrụ niile, na operating system kwa mgbe
- Cheta ime ọrụ gị backup kwa oge. E kwesịrị ime backup na file niile dị mkpa mgbe niile. N’ọnọdụ kachasị njọ, ndị ọrụ nwere ike ịdaba na ransomware dịka ọmụmaatụ. Ihe dị otu a mee, ihe niile ga-efunahụ ha ma ha enweghi ndabere backup.
- Gbaa mbọ hụ na ị na-eji njikọ connection e chekwara echekwa gaa ebe ọrụ gị. Nke a pụtara iji VPN ma ọ bụ ụzọ nchekwa ndị ọzọ dịka Teamviewer.
- Kpachara anya maka ozi phishing email. Mmadụ kwesịrị ịdị na-enyo ozi email ọbụla na-arịọ ka ịlele ma ọ bụ megharịa nzere gi ọbụlagodi ma ọ dị ka o sitere na ebe atụkwasịri obi. Biko nwaa chọpụta ma arịrịọ ọbụla dị mkpa ma ọ bụ nke a na-enyo enyo ma ọ bụ ezigbo ya site n›ụzọ ndị ọzọ; a pikwala aka ma ọ bụ mepee mgbakwunye ọbụla dị aṅaa.

Ndụmọdụ nye ndị nwe ọrụ

- Lekwasị anya n’ichekwa system na-akwado remote access, dịka VPN. Gbaa mbọ hụ na e kpuchiri system ndị a nke ọma,

127 https://www.techtarget.com/searchnetworking/feature/Wireless-encryption-basics-Understanding-WEP-WPA-and-WPA2

hazie firewall nke ọma, ma tinye software na-egbochi mwakpo nje malware.

- Ekpughekwala Remote Desktop Protocol (RDP) nye intaneti (Jikoo ya na VPN mbụ)
- Mebe multi-factor authentication ebe ọbụla o kwere omume
- Leba anya na imachi ụzọ e si abanye na system ebe ozi dị ezigbo mkpa dị.
- Zigara ndị ọrụ gị ozi gbasara imata ozi bụ ozi phishing.
- Iji software enweghi ikike maka ọrụ gọọmentị (nke a maara dị ka shadow IT) nwere ike ịbawanye mgbe a na-arụ ọrụ n'ụlọ, nke na-ebuli ihe egwu nchekwa na nzuzo. Gbaa mbọ hụ na ndị ọrụ maara usoro iwu, usoro nzuzo na ọrụ iwu metụtara ozi ụlọ ọrụ gị.
- Nyochaa atụmatụ nzaghachi ihe mberede ụlọ ọrụ gị. Ọ bụrụ na ọ dị mkpa, melite ya ka o kpuchite ndị ọrụ na-arụ ọrụ n'ụlọ.
- Leba anya na atụmatụ oganihu na atụmatụ ihe mberede azụmahịa gị. Gbaa mbọ hụ na ihe ndị a bụ ndị a na-emelite kwa oge.

Nzukọ video

Dịka nzukọ video bụzị ihe onye ọbụla na-eme kemgbe oge COVID, a hụkwara mmụba na ihe a na-akpọ "Zoom bombing", ebe ndị ọjọọ na-abata na nzukọ, na-akpata ọgba aghara n'ọgbakọ.

Iji gbanahụ ọnọdụ dị otu a, ndụmọdụ ndị a na-egosipụta usoro ihe ndị e nwere ike ịme:

- Gbaa mbọ hụ na ndị a kpọrọ nzuko nwere ike iji naanị ndepụta invitation bata na nzukọ.
- Tinye paswodu nke onye o ọbụla ga-enwerịrị tupu ọ bata na nzukọ.
- Tinye nkwado Administrator nke onye ọbụla ga-enwe tupu ọ bata na nzukọ.
- Edenyekwala mgbakwunye link e ji abata na nzukọ n'ime social media.
- Gbaa mbọ hụ na ngwaọrụ video conferencing na chat bu ndị na-adịkarị ọhụrụ.

Ngwaọrụ video conferencing

- Zoom[128]
- Google Meet[129]
- Microsoft Teams[130]
- WhatsApp[131]
- Signal[132]
- Jitsi[133]
- Cisco Webex[134]

Ngwaọrụ ikike na nchekwa dijital

Ayeta Digital Rights Toolkit[135]

Ngwaọrụ mkpakọrịta a na-akụziri ndị mmadụ ịghọta na ịchọpụta ihe iyi egwu gbasara nchekwa dijital, kwupụta ebumnuche ha banyere nchekwa, mụta ka e si echebe onwe ha na intaneti, ma nyekwa ha ngwa mmepụta paswodu.

Feedshield[136]

Feedshield bụ ngwaọrụ intaneti nke na-enyere ndị na-akwalite ikike mmadụ aka igbanwe ihe site na idetu mmegbu na ikpughe ndị omekome.

128 https://zoom.us/
129 https://workspace.google.com/products/meet/
130 https://www.microsoft.com/en-us/microsoft-teams/group-chat-software
131 https://www.whatsapp.com/
132 https://www.signal.org/
133 https://jitsi.org/
134 https://www.webex.com/
135 https://paradigmhq.org/ayeta/game.html
136 https://feedshield.africa/en/

Ripoti[137]

Ripoti bụ ọgbakọ intaneti na-enyere gị aka ịkọ akụkọ mmebi iwu dijital. Ripoti raara onwe ya nye ichekwa ụkpụrụ nke nnwere onwe dijital.

Kuram[138]

Kuram bụ webụsaịtị nzaghachi metụtara ihe a kpọrọ Gender based violence (OGBV) nke e mere iji mepee ụzọ ụmụ nwanyị na ndị otu ndị ọzọ adịghị ike ga-eji kọọ akụkọ ihe ike dijitalụ e mere megide ha.

137 https://ripoti.africa/
138 https://kuramng.org/

ISI NKE

III | IBELATA IHE IYI EGWÙ

3.1

Nchebe Onwe N'ihe Ma Na Intaneti

Nchebe dijital n'oge ihe ngagharị iwe

O nwere mgbe ọ na-eru dịka ha na-arụ ọrụ ha, ndị na-eme ihe gbasara ikike dijital ahụta onwe ha n'ime ngagharị iwe iji mee ka anụ olu ha. Mana iji ìgwè digital dịgasị iche iche aga ngagharị iwe ndị a nwere ike ịbụ ihe ọghọm nye ha, nihi na ndị na-akwagide iwu obodo nwere ngwa onyunyo dijital ndị dị ka tower ekwenti adigboroja na teknuzu eji amata ihu mmadụ ha nwere ike iji amata ndị ngagharị iwe, ma nyochaakwa ngagharị na nzikọrịta ozi ha, nke nwere ike itinye nchekwa na nzuzo onwe ndị ngagharị iwe a na nsogbu. Tupu ha agawa ngaghari iwe udo, ndị ngagharị iwe kwesiri ịhụ maka nzuzo onwe dijital ha. N'okpuru bụ ụfọdụ ihe ndị ha kwesiri ibu n'obi.

Idobe nkwado ngagharị iwe na nzuzo

Inwe ihe mkpuchi VPN a tụkwasịrị obi nwere ike inyere ndị na-akwado ngagharị iwe aka ikpuchi traffic intaneti ha. N'aka nke ọzọ, ndị ngagharị iwe nwekwara ike iji ngwa ọrụ dịka

Tor browser[139], nke na-ekpuchi ihe mmadụ na-eme na intaneti site n'igbochi ihe ndị a na-akpọ 'tracker'na ime encryption na traffic netwọk ha ọtụtụ oge. Ọzọ dịkwa mkpa bụ ịhụ na nkwado ngaghar̄ị iwe bụ ihe e ji ngwa ekwenti nwere end-to-end-encryption mee, na-abụghị iji ozi ederede nkịtị (nke a makwa dịka SMS).

Full Disc Encryption nke Ngwaọrụ Dijital

Ọ bụrụ na ndị na-akwagide iwu obodo anapụ gị ìgwè dijital gị, ma ọ bụ ya efuo, ma ọ bụ ezuru ya, ihe a na-akpọ 'full-disk encryption' nwere ike ikpuchite data nke dị n'ime ìgwè dijital gị. Igwe dijitalu ndị Android[140] na iOS[141] nwere full disk encryption nke a rụnyere n'ime ha. Igwe dijital ndị a kwesịrị ka e jiri paswodu siri ike chekwaa ha iji gbochie mwakpo brute force imegide ha.

Tinye Signal

Signal bụ ngwa ekwenti e nwere na iOS[142] na Android[143] nke na-enye end-to-end encryption siri ike iji ichekwa ozi SMS na oku ekwenti. Tinyere ime encryption na nzikorita ozi n'etiti mmadụ na ibe ya, Signal na emekwa encryption na nkata ndị mmadu na-akpa n'otu. Nso nso a, ngwa ekwenti a enweekwala ihe na-eme ka ozi e dere ede ma ọ bụ nke e kwuru n'ọnụ bụrụ nke e hichapụrụ site sekond iri ruo izu ụka anọ na-esote oge ebu ụzọ gụọ ma ọ bụ gee ha. Ihe dị iche na ya na ngwa ekwenti ndị ọzọ dịka SnapChat bụ na ozi ndị a enweghi ike inogide n'ime igwe server ọbụla; ha na-esi n'igwe dijital gị pụọ kpam kpam dị ka ị kwụsịrị ịhụ ha anya.

Nwee Oyiri Data Gị

Jisie ike hụ na ị belatara ọghọm ga-adị ma inwezighi ike iji igwe dijital gị mee ihe, dịka mgbe o furu efu, e zuru ya n'ohi, ma ọ bụ ndị nchekwa iwu obodo napụrụ gị ya n'ike. Kwa mgbe kwa mgbe, mee ka data gị nwee oyiri(nke a na-akpọ backup), ma dozikwaa oyiri a n'ebe ọzọ dị mma ka ị hapu inwe isi ọwụwa maka ya mgbe dị n'ihu.

Ekwentị Burner

Ndị ngaghar̄ị iwe na-achọghị ka ekwenti ha bụrụ nke a na-esoghar̄ị nwere ike inwete ekwentị ọzọ a na-akpọ "burner phone", nke e ji ego kwụbuo ụgwọ ya na nke sọọsọ ihe e ji ya eme bụ ikwuru ndị mmadụ okwu oge ọbụla a na-eme ngaghar̄ị iwe udo. Uru ekwentị burner ndị a bụ na ndị nwe ha nwere ike iji ha enweta ndị mmadụ – karịsịa n'oge ihe dị aṅaa – na-ekpughegi data niile dị n'ime ekwentị nke ha ji ezipụ ma na-anatakwa ozi oge niile. N'aka nke ọzọ, itinye ekwentị gị n'ọnọdụ ụgbọ elu nke a na-akpọ 'airplane mode' nwekwara ike ịrụ ọrụ dị otu a.[144]

Nchekwa Onwe n'ihe

Ihe iyi egwu ihe dịịrị ndị na-ahụ maka ikike dijital bụ nke pụtakwara ihe dị ka ihe iyi egwu dijitalu dịịrị ha. Ihe iyi egwu ndị a gunyere njide, mmaja, ịnapụ igwe dijital n'ike, na itukpu n'nga site n'aka ndị ọrụ steeti. Nke a na-etinye ndị na-ahụ maka ikike dijital n'ihe ize ndụ dị elu. Iji belata ihe iyi egwu ihe ndị a, a na-enye ha ndụmọdụ ka ha mepee anya ha; nọrọ na njikere; ma burukwa n'obi otu gburugburu ebe obibi ha dị, iwu obodo, na ụdị ndị mmadụ nọ n'obodo ha. Iwu a na-eso bụ na ọ dị mkpa ka ndị na-ahụ maka ikike dijital chekwaa onwe ha nke ọma, nke ga-emezi ka ha nwee ike ichekwa ndị ọzọ.

2. Ibelata Ihe Iyi Egwu Nke Ahụ

Iji belata ihe iyi egwu, o ga-adi mma ka ndị na-ahụ maka ikike dijital tulee ihe ndị a:

139 https://www.torproject.org/
140 https://source.android.com/security/encryption/full-disk.html
141 https://www.apple.com/business/docs/iOS_Security_Guide.pdf
142 https://ssd.eff.org/en/module/how-use-signal-ios
143 https://ssd.eff.org/en/module/how-use-signal-android
144 https://ssd.eff.org/en/module/attending-protest

Ịnabata ihe ize ndụ: Onye chọrọ nchekwa kwesiri ịma na o nwere ike ịnọ n'ihe ize ndụ dịka ọ na-arụ ọrụ ndị diịrị ya. Ka ọ ghọtara nke a, a na-ele anya na onye a ga-adi na njikere ibelata ihe ize ndụ ọbụla nwere ike ibilite. N'ima atụ, dịka ị na-apụ aga ọrụ metụtara ndị mmadụ ebe a na-alụ agha, ị kwesịrị ịma na nchekwa gị bụ ihe dị mkpa; nihi ya, ị kwesịrị ịdị njikere ịgba ọsọ ma ọ dapụta, nakwa ịkpọ oku enyemaka. Ị kwesịkwara ịkọwara ndị agha na-alụ ọgụ a ihe bu ebumnuche gị iji nọdụ ebe ahụ, nke ga-eme ka ha nwee ike ikwe gị gagharịa na mpaghara ahụ. Ọzọkwa, dị ka ịma na data gị nwere ike ịnọ na ihe ize ndụ nke a na-akpọ 'cyber-attack', ị kwesịrị imeputa paswodu siri ike, nyochaa ebe nnọkọ dijital ndị ị chọrọ iji arụ ọrụ, kesaa data gị nye ndị ị tụkwasịrị obi, ma doziekwa data gị n'ime igwe nchekwa dị iche iche.

Izere ihe ize ndụ: Ịmata ihe ize ndụ bụ ofu ihe, ịgbanarị ya abụrụ ihe ọzọ. Mgbe ị matara maka ihe ize ndụ dị n'ihu, gbanarị ya n'ụzọ ọbụla; ọ dighị mkpa ịgbagide ụkwụ n'ikike gị n'oge ahụ. Inwe ike ịgbanarị ihe ize ndụ, okwu gị na omume gị kwesiri igosipụta ma gbanweekwa dị ka ọnọdụ ịnọ n'ime ya siri dị. I kwesịrị ileru asụsụ ahụ gị anya ma jirikwa amamihe kwuo okwu, i kwesịrị inyocha gburubguru gị tupu gị ebido ime ihe ọbụla ma ọ bụ ikwuru ndị mmadụ okwu, i kwesiri ịghọta ma e nwere ihe ize ndụ zoro ezo ma e nweghi, n'ikpeazu i kwesịkwara ịlụsị ọgụ ike iji guzogide onye na-awakpo gị mgbe o doro anya na ị nọ na nsogbu.

Mee ka ndị kwesiri mata ebumnuche gị: Echiche gị nwere ike ịkpata ihe ize ndụ mgbe I mere ka ọha mata ya. Dịka onye nkwuchite ikike mmadụ, i kwesịrị ịma ụdị mmadụ ndị ị ga na-agwa ihe ibu n'obi, ma ọ bụ ndị gi na ha na-emekọ ihe, maka na ọ bụghị mmadụ niile ga- anabata ebumnuche gị.

Njirimara nke onwe na nke ụlọ ọrụ: Dịka onye na-ekwuchitere ụlọ ọrụ gị ma ọ bụ onye nnọchiteanya ya n'ime ebe e nwere ike inwe ihe ize ndụ, ọ dị mkpa na ị ga-eji ozi gbasara onye ị bụ, ihe ị na-arụ, na ndị ị na-anọchite anya ha. Ihe akaebe ndị dị otu a na-aka adi mkpa mgbe a tụnyere gị n'ụlọ nga dịka onye a na-enyo enyo. Ọtụtụ mgbe, ụzọ i siri kọwaa onwe gị, ọkwa ọrụ gị, na ebe ị na-arụ ọrụ na-emetụta n'ụzọ dị ukwuu, otu ndị jidere gị ga-esi akpaso gị agwa. Ọtụtụ mgbe ndị a na-enyo enyo aka ha dị ọcha na-abụ ndị atọhapụrụ dịka ha kọwachara onwe ha nke ọma. Asụsụ ahụ, okwu, na mkpakọta ọnụ bụ ihe mmadụ kwesịrị ijikwa nke ọma mgbe a nwuchiri ya na-enyochakwa ya.

Mmata ọnọdụ na gburugburu onye: Mgbe ị nọ na nsogbu, hụ na anya gị mepere emepe ịmata ka gburugburu gị si dị oge ọbụla, dị ka I na-etinyekwa n'uche ihe bụ ọrụ gị, ebe ị nọ, na ndị bụ ndị iro gị – ihe ndị a dị mkpa itule n'ọnọdụ dị ańaa ma ọ bụrụ na ị chọrọ ịnọ na nchekwa. Iji ima atụ, onye nkwuchite ikike mmadụ ekwesighi ịnọ n'ime ogige ndị agha kọọtọ mpụ ndị agha mere.

Zere ebe ndị ihe ize ndụ nọ: Mpaghara ndị dị ka oke obodo, igwe mmadụ, ụlọ akụ, okporo ụzọ na-enwe traffic, ebe ọha na-agbakọta, ebe ndị e nwere ọgbaghara ma ọ bụ ebe a na-alụ ọgụ bụcha ebe ndị a na-enwe ihe ize ndụ, bụrụkwa ebe ndị i kwesịrị ịma mgbe ọ dị mma ịga dịka o si metụta ihe ị na-arụ na ọkwa ọrụ gị. Iji maa atụ, onye na-arụ ọrụ gbasara ikike mmadụ ekwesịghị ịga ebe ndị e nwere ọgbaghara tupu ndị na-eme ihe ọgbaghara ahụ ekweta ichekwa ya. N'ịma atụ, n'ime mpaghara Cameroon ebe a na-asụ asụsụ bekee ebe ndị e nwere ọgbaghara n'etiti ndị nkewa na ndị agha ndị ọchịchị, ndị na-arụ ọrụ metụtara mmadụ enweghi ike ibanye ebe ọgụ dị ma ọ bụrụ na ndị na-alụ ọgụ ahụ agwaghị ha na ha ga-enwe ike agafe n'udo. Nke a bụ maka na mgbọ nwere ike ịtụ ha; e nwekwara ike ịnwuchi ma ọ bụ tọrọ ha nihi na ndị na-alụ ọgụ ebe ahụ ekweghi ichekwa ha.

Akwa: I kwesịrị ibu ọdịdị gị n'obi ma ghọtakwa ụzọ ka mma iyi akwa mgbe ị na-aru ọrụ ndị metụtara mmadụ. Iji maa atụ, mgbe Ị na-apụ ịga ọrụ n'ezi i kwesịrị iyi akpụkpọ ụkwụ dị ferefere ma yirikwa akwa ga-eme ka ọ dịrị gị mfe isi n'ebe ị nọ gbapụ ọsọ mgbe ihe dapụtara. Ọ bụrụ na mpaghara ebe ị nọ abụghị nke e chekwara nke ọma, eyikwala akwa dị oke onu ka ahapụ inyopụta gị site na akwa gị.

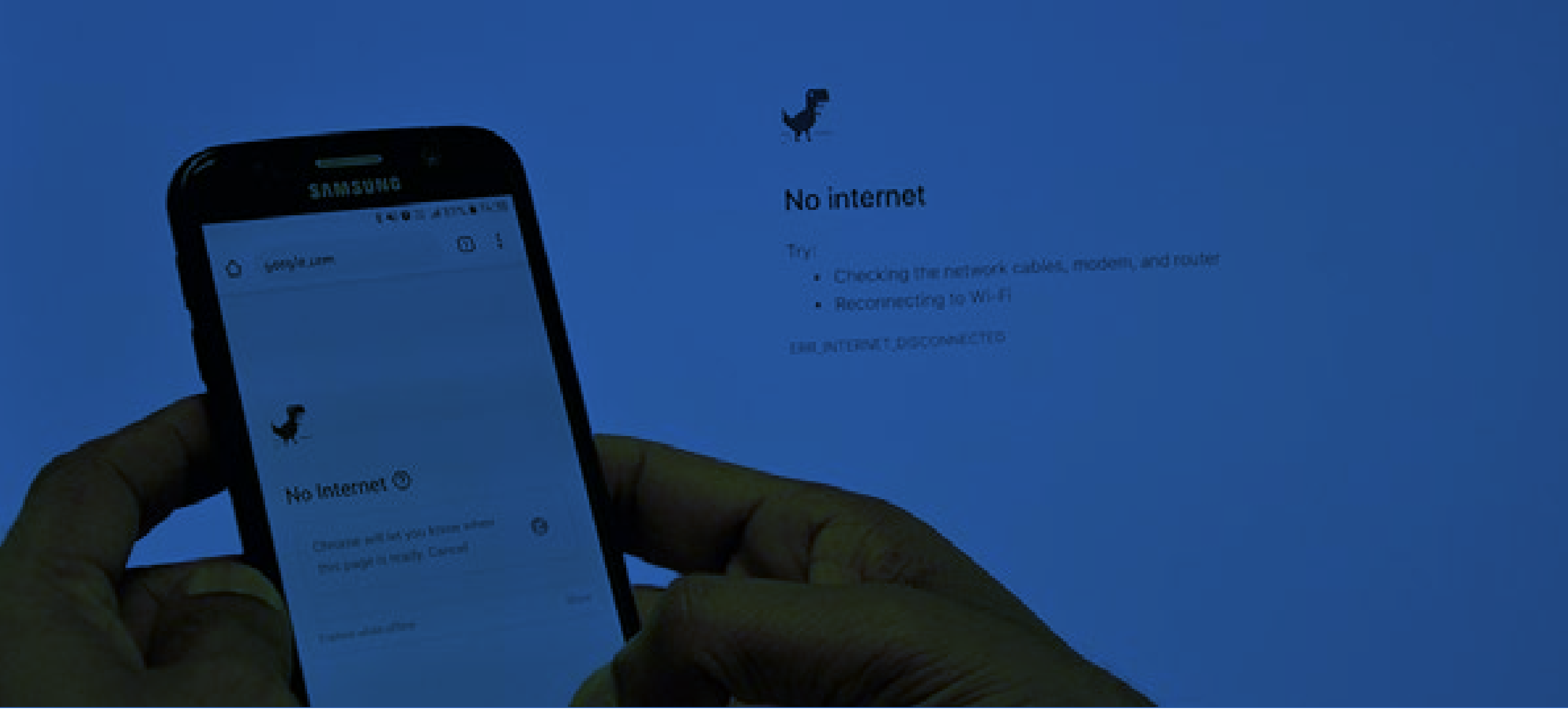
Emekwala isi ike mgbe a tụgidere gị egbe ma ọ bụ mgbe ị nọ n'ogige ndị agha: Mgbe

e jidere gị ma ọ bụ tọrọ gị ma ọ bụ gbaa gị gburugburu, mee ihe ọbụla a gwara gị iji chebe ndụ gị. Ajụkwala ma burukwa ụzọ tụlee nchekwa gị.

Jikere maka ihe ọbụla nwere ike ime: Mgbe ọbụla ị na-aga ọrụ, nyochaa ihe ize ndụ ndị nwere ike ime ma were ngwa First Aid na ihe niile dị mkpa ebe ọ dị ọtụtụ dịka ahụike gị, njem gị, ọnọdụ ihu eluigwe, mkpa ego, wdg, siri di, iji gboo mkpa nchekwa anụ ahụ gị.

Nwee mmadụ i tụkwasịri obi mgbe niile: N'ime mbọ dị ize ndụ dịka ịgba mbọ maka ikike mmadụ, I kwesịrị ịkwado maka ihe egwu nke njide, ntọrọ mmadụ ma ọ bụ mbuso agha na data gị. Dị ka ụzọ nbelata, i kwesịrị inwe ndị ọrụ ibe gị otu ma ọ bụ karịa i nwere ike ịgwa ihe gbasara gị, ebe ị na-aga, oge a na-atụ anya na ị ga-anọ ebe ahụ, mgbe a na-atụ anya na ị ga-alọghachi, na ihe e kwesịrị ime ma ọ bụrụ na e nwee ihe mberede.

Nọmba mberede na nsogharị: Debe nọmba maka ndị uwe ojii, ụgbọ ala ambulance, ndị ọrụ mmenyu ọkụ ọgbụgba, ụlọ ọgwụ, wdg n'ebe e chekwara nke ọma. Budata ma wunye ngwa application ndị nwere ike ịchọta ekwentị gị mgbe ị nọ na nsogbu.



ISI NKE IV | MMECHI INTANETI

Nkeji edemede 19 nke Universal Declaration of Human Rights kwetara na onye ọbụla nwere ikike inwe uche nke ya na ikwupụta okwu; ikike a gụnyere nnwere onwe mmadụ inwe uche nke ya na-enweghi nnyonye anya nakwa ịchọ, ịnata na izipu ozi na ero site n'ụzọ mgbasa ozi ọbụla na-agbanyeghị oke. Mana otu ọ dị n'afọ ndị na-adịbeghị anya, e nwekwuola ọchịchọ nke ndị mba Afrika ime ka ozi hapụ iru mmadụ aka na intaneti. Nke a emeela intaneti ka ọ bụrụ ebe na-agbanwe agbanwe n'ụzọ a na-atụghị anya; tinyere nke a, ihe ịma aka n'ihu dịịrị ndị bu okwu n'isi, ndị na-agbachitere ikike mmadụ, ndị na-emegide ọchịchị ọjọọ, na ndị nta akụkọ na-arị elu dịka akụkọ kwuru.

Ndị ọchịchị ike amalitela iji ngwa dijital na ụzọ dị iche iche dịka mmechi ịntanetị, nnyocha ịntaneti na onyunyo dijital iji kwụsị nnwere onwe nkwupụta okwu. Dịka Access Now kwuru, n›afọ 2022, opekata mpe mba iri atọ na ise (35) mechiri intaneti ọbụlagodi ugboro otu

narị, iri asatọ na asaa (187).[145] Ka ọ dị ugbu a, nke a bụ ọnụọgụgụ kachasị elu e deturu n'ime otu afọ. Na 2023, ka ọ na-eru ọnwa Septemba, opekata mpe mmechi intaneti iri na abụọ (12) emeela na ala sub-saharan Afrịka, nke gbochiri nnwere onwe nkwupụta okwu ma machiekwa ohere inweta ozi, ọkachasị n'oge ntuliaka na oge ngagharị iwe ọha. Mmechi intaneti a furu nde dollar narị abụọ($200 million). Gburugburu ụwa niile, mmechi intaneti butere ngụkọta ọnụ ahịa ijeri iri ($10 billion) n'afọ 2022.[146]

Ọzọkwa, akụkọ ndi Paradigm Initiative dere na 2019[147] kpuhere na ọtụtụ gọọmentị mba Afrika na-emechi intaneti maka ebumnuche ndọrọ ndọrọ ọchịchị, na-amanye iwu ndị siri ike gbasara ozi a ga-ezipu na intaneti, ma ọ bụ/ nakwa na-ejikwa mwakpo spyware emegide ndị na-agbachitere ikike mmadụ. Akụkọ 2023 nke PIN Londa mere ka ọ pụta ìhè na mba ise (5) n'ime mba iri abụọ na isii(26) a kọrọ maka ha mechiri intaneti.[148]Akụkọ a kwukwara na mbupụ usoro nlereanya ndị China na Russia nke a na-akpọ "rule of law" maka njikwa intaneti ebutela njikwa gọọmentị na mmebi ikike dijital site na iwu nke e dere iji kwalite iwu na usoro n'ime obodo Afrika.

Mmechi ndi ahụ enweela mmetụta dị njọ dịka osi gbasara akụ na ụba na mba ndị a na-ekwu maka ha. Nnyocha Deloitte[149] na-ekpuhe na mba nwere njikọ connection di elu ga-agabiga ihe dị ka nde dola iri abụọ na atọ ($23.6million) kwa nde mmadụ iri (10 million), kwa ụbọchị nke e mechiri intaneti na ọrụ ya niile obere oge. N'afọ 2023 mmechi intaneti na-aga n'ihu ịdị oke ọnụ, ebe mba dịka Ethiopia na-etufu ihe ruru dollar otu ijeri na ọkara ($1.59 billion)[150] . N'agbanyeghị nke a, ngụkọta ọnụ ahịa furu maka mmechị intaneti n'afọ 2023 jiri 67% gbada ma e jiri ya tụnyere nke 2022, mana jiri 45% gbagoo ma e jiri ya tụnyere nke 2021. Oge mmechị jiri 18% gbagoo ma e jiri ya tụnyere nke 2022, ma jirikwa 71.5% gbagoo ebe ọ dị elu ma e jiri ya tụnyere nke 2021.[151]

N'agbanyeghi mmegharị a nke steeti dị iche iche na-eme iji kpachie oghere dijital nke ha jikwa na-amachi ọrụ nke ndị nọ n'ihu ọrụ gbasara nkwuchite ọnụ ikike mmadụ ma ọ bụ dijital, ọtụtụ ngwaọrụ intaneti ndị na-enye mkpuchi na ụzọ mgbagharị dịka VPN na web based proxy na-eweta olileanya nye ndị na-arụ ọrụ gbasara ikike mmadụ, ndị na-agbachitere ikike dijital, ndị nta akụkọ, na ndị na-ekpughe ihe dị aṅaa.

5.1.

Ịgbanarị Mmechi na Nnyocha Intaneti

Virtual Private Network (VPN)

Dịka a tulere n'isi nke abụọ n'okpuru nchekwa dijital, VPN bụ ụzọ i nwere ike iji ejikọ ngwaọrụ intaneti gị na netwọkụ nke ụlọ ọrụ ọzọ n'intaneti n'ụzọ chekwara echekwa. Mgbe ị na-eji VPN, a na-achịkọta ozi intaneti gị niile ọnụ, gbaghasia ha iwepụ nghọta, ma zigara ha ndi ụlọ ọrụ ahụ, ebe a na-agbakọta ha itinye nghọta, bupụta ha, ma zigazie ha ruo ebe ha kwesịrị ịga. Nye netwọk ụlọ ọrụ ahụ, ma ọ bụ igwe kọmputa ọbụla ọzọ no n'ịntanetị sara mbara, ọ dịka arịrịọ kọmputa gị o si n'ime ụlọ ọrụ ahụ abịa, na-abụghị site n'ebe ị nọ. Ndị mmadụ na-eji VPN agafee nnyocha obodo, ma ọ bụ merie onyunyo n'mpaghara obodo.

Tor Browser

Tor[152] bụ software mepere emepe anaghị efu ego a na-eji ezikọrịta ozi na-amaghị aha. Aha

145 https://www.accessnow.org/press-release/keepiton-internet-shutdowns-2022-africa/
146 https://technext24.com/2022/12/14/internet-shutdowns-cost-sub-saharan-africa/
147 http://paradigmhq.org/download/dra19/
148 https://paradigmhq.org/londa/
149 https://www2.deloitte.com/global/en/pages/technology-media-and-telecommunications/articles/the-economic-impact-of-disruptions-to-internet-connectivity-report-for-facebook.html
150 https://www.forbes.com/sites/emmawoollacott/2024/01/04/government-internet-shutdowns-bring-huge-economic-costs/?sh=557e1b654e44
151 https://www.forbes.com/sites/emmawoollacott/2024/01/04/government-internet-shutdowns-bring-huge-economic-costs/?sh=557e1b654e44
152 https://www.torproject.org/download/

ya sitere na mkpịrịokwu nke ọrụ ngwanrọ izizi a na-akpọ “The Onion Router”. Tor nwere ihe ndị arụnyere n’ime ya nke na-echebe gị pụọ na nsoghari web, onyunyo, na mbipụta mkpịsị aka.

DuckDuckGo

Nke a bu igwe nchọta ịntanetị nke na-echedo nzuzo ndị na-achọ ihe ma na-ezerekwa ngwa filter bubble nke ọchụchọ a haziri iche. DuckDuckGo[153] na-ekewa onwe ya na ngwa nchọta ndị ọzọ site n’ịkpuchi ndị na-eji ya achọ ihe na igosikwa ndị ahụ niile otu nsonaazụ ọchụchọ maka okwu ọchụchọ obula.

Igbanwe Ntọala Domain Name System (DNS)

Mgbe ị na-agabiga ihe mmebi DNS a na-akpọ ‘poisoning’ ma ọ bụ ‘spoofing’,[154] nke ndị ọrụ ahịa intaneti na-ebutekarị, ịgbanwe ntọala DNS a nwere ike inye aka n’ịgbanari nnyocha DNS. Ndị gọọmenti na-abụkarị ndị na-anọ n’ihu nkwalite mmebi DNS iji gbochie ihe dị na intaneti ndị obodo nwere ike inweta.

3.2

Itụ Mmechi na Nnyocha Intaneti

Open Observatory of Network Interference (OONI)

OONI bụ ọrụ software efu nke ebumuche ya bụ ịkwado mbọ dị iche iche ịhụ na nnyocha intaneti gburugburu ụwa bu nke e nweghi ihe nzuzo ọbụla. OONI na-emepụta ngwa software[155] efu na nke mepere emepe a kpọrọ OONI Probe iji chọpụta:

- Mgbochi nke weebụsaịtị
- Mgbochi nke ngwa ozi ngwa ngwa (WhatsApp, Facebook Messenger na Telegram);
- Mgbochi nke ngwaọrụ ndi e ji-agbanarị ihe nnyocha (dịka Tor na Psiphon);
- Ọnụnọ nke system (middleboxes) n’netwọkụ gị nke nwere ike ibụ maka nyocha na/ma ọ bụ onyunyo; na
- Ọsọ na arụmọrụ nke netwọk gị.

I nwere ike iji OONI Probe[156] nakọtaa data nke nwere ike ịbụ ihe akaebe nke nnyocha intaneti ebe ọ na-egosi otu, mgbe, ebe na onye e ji tinye ya n’ọrụ. E nwere ike ịchọta ozi gbasara usoro nnyocha intaneti na webusaiti nchọpụta nnyocha nke OONI.[157]

Internet Outage and Detection Analysis (IODA)

IODA na-enyocha intaneti ma chọpụta onyunyu njikọ ịntanetị ozugbo na ngwa dashboard[158] na-egosi ihe dị otu a; nke a na-enye ndị ji ya arụ ọrụ ohere isoghari onyunyu intaneti n’ụwa niile.

Measurement Lab (M-Lab)

M-Lab[159] na-atụ arụmọrụ netwọk n’ụwa niile n’ụzọ mepere emepe ma dịrịkwa mfe nchọpụta. Site na M-Lab, ndị ọrụ nwere ike tụọ arụmọrụ intaneti ha iji nwalee ọsọ intaneti. Nke a na-enyere aka ịchọpụta nkwụsị nke ọsọ ịntanetị.

153 https://duckduckgo.com/
154 https://www.fortinet.com/resources/cyberglossary/dns-poisoning
155 https://github.com/ooni/probe
156 https://ooni.org/install/
157 https://explorer.ooni.org/findings
158 https://ioda.inetintel.cc.gatech.edu/dashboard
159 https://speed.measurementlab.net/#/

3.3.

Ikwugide Mmechi Ịntanetị n'Afrika

Ngwáorụ Ọnụahịa Mmechi nke NetBlocks (COST)

Nke a bu ngwa intaneti[160] nke na-eji data arụ ọrụ maka ịtụ ọnụahịa mmechi intaneti na ime ka gọọmentị kwenye idobe intaneti. Ngwaọrụ a na-enyere onye ọbụla aka - gụnyere ndị nta akụkọ, ndị nchọpụta, ndị na-akwado ihe, ndị na-eme iwu, ndị azụmahịa, na ọtụtụ ndị ọzọ - iji, n'ụzọ dị ngwa ngwa ma dịrịkwa mfe, ọtụtụ puku ihe ngosi mpaghara sitere na World Bank, ITU, Eurostat na US Census tulee ọnụahịa nke mmechi intaneti, ọnyụnyụ data ekwentị na mkpachi social media. Netblocks[161] bụ site nlebanya intaneti zuru ụwa ọnụ nke na-enye ihe nchọpụta na akụkọ gbasara mbelata ọsọ intaneti, mmechi nakwa mkpachi intaneti.

Mgbasa ozi#KeepItOn

Mgbasa ozi a zuru ụwa ọnụ[162] nke AccessNow haziri na-arụ ọrụ ịgba ndị gọọmentị mba ụwa niile ume ka ha ghara imechi intaneti ma kwekwa ka ozi na-aga enweghi ihe mgbochi ọbụla.

Egwuregwu Mmechi Intaneti

Otu Association for Progressive Communications mepụtara egwuregwu mmechi intaneti[163]na-ekpuhe ụdị mmechi intaneti dị iche iche na ụzọ e si egbochi ha. Egwuregwu a bụ maka ndị na-akwado ikike mmadụ, ọha na eze na ndị okaiwu.

160 https://netblocks.org/cost/
161 https://netblocks.org/reports
162 https://www.accessnow.org/campaign/keepiton/
163 https://shutdowngame.apc.org/

NKỌWA OKWU

Ihe mgbakwunye (Add-on) - Ngwa software na-emegharị software ọzọ site n'igbanwe ụzọ o si arụ ọrụ ma ọ bụ ihe o nwere ike ime. Ọtụtụ mgbe ihe mgbakwunye ndị dị otu a na-atukwasi agwara mkpuchi ma ọ bụ nchekwa n'ihe nchọghari web ma ọ bụ ngwa software nke email. Ụfọdụ ihe mgbakwunye ndị a bụ malware, nihi ya kpachara anya ka i tinye naanị ndị a ma ama na ndị sitere n'ebe a kwadoro pụta.

Amaghị aha (Anonymity) - Ọnọdụ nke amaghị onye ma ọ bụ aha

Ngwanrọ mgbochi nje (Anti-virus) - Ngwanrọ mgbochi nje nke a na-eji egbochi, chọpụta na wepụ malware, gụnyere virus kọmputa, worm, na Trojan horse. Ụfọdụ ịmaatụ nke Ngwanrọ mgbochi nje bụ McAfee, Avast, AVG, na Kaspersky.

Nnyocha intaneti (Censorship) - Nnyocha intaneti bụ njikwa ma ọ bụ nkwụsị nke ihe e nwere ike ịnweta, ibipụta, ma ọ bụ lee anya n'intaneti, nke ndị na-achịkwa, na/ma ọ bụ gọọmenti kwadoro.

Ngafere (Circumvention) – Iji ụzọ na ngwaọrụ dị iche iche gafere nnyocha ịntanetị.

Nzuzo ozi (Cryptography) - Nkà nke imepụta code nzuzo na-eme ka gị na onye nnata nwee ike na-ezikọrịta ozi na-enweghị ndị ọzọ nwere ike ịghọta ozi ahụ.

Ịdị ọcha dijital (Digital hygiene) – nke a gbasara usoro ndị dị ka ịhazi file ndị dị na kọmputa gị, ịgbachi akaụntụ social media gị, iwebata ngwa ọhụrụ ma ọ bụ teknụzụ iji mee ka ndụ dijitalụ gi dị mfe ma ọ bụ nwee nchekwa.

Ikike dijital (Digital rights) - Ikike dijital bụ ikike mmadụ nwere n'oge intaneti.

Ntụgharị ozi (Encryption) - Usoro nke na-ewe ozi wee mee ka ọ hapụ ịkwe ọgụgụ nke bụ na naanị onye maara ka esi atụghachị ya azụ nwere ike ịgụ ya.

Igodo ntụgharị ozi (Encryption key) - Igodo ntụgharị ozi bụ mpempe ozi a na-eji atụgharị ozi ka ọ bụrụ ụdị nke e nweghi ike ịgụ. N'ọnọdụ ụfọdụ, otu igodo ntụgharị ozi a ka ị ga-eji tụghachịkwa ozi ahụ otu ọ dị na mbụ. N'ọnọdụ ndị ọzọ, igodo ntụgharị ozi na igodo ntụghachị na-adị iche.

Ngwáọrụ nche kọmputa (Firewall) – Ngwáọrụ na-echebe kọmputa site na njikọ ndi a na-achọghị ma ọ bụ site na netwọk mpaghara na intaneti. Ngwáọrụ nche kọmputa nwere ike inwe iwu ndị na-amachibido ozi email na-apụ apụ, ma ọ bụ njikọ gaa na weebụsaịtị ụfọdụ. Ngwáọrụ nche kọmputa bụ ihe e nwere ike iji dị ka ụzọ nchebe nke mbụ iji chebe ngwaọrụ pụọ na ihe ndabichi a na-atụghị anya ya. E nwekwara ike iji ha gbochie ndị ọrụ ịnweta intaneti n'ụzọ ụfọdụ.

Usoro File Transfer (File Transfer Protocol) - Usoro netwọkụ isi e ji enyefe file site n'otu ebe n'intaneti gaa na nke ọzọ n'elu netwọkụ dabere na usoro njikwa ngafe ozi nke a na-akpọ Transmission Control Protocol dị ka ịntanetị.

Mmechi ịntanetị (Internet shutdown) - Mmechi ịntanetị mgbe ama uma kwụsị intaneti ma ọ bụ nzikọrịta ozi eletrọnịkị, mee ka ha hapụ ịru aka ma ọ bụ ka ha bụrụ nke ụfọdụ ndị ma ọ bụ otu mpaghara obodo enweghị ike iji mee ihe, ka e nwee ike jikwaa mgbasa ozi.

Adreesị IP (IP address) – Internet Protocol address bụ ihe na-akọwapụta ngwaọrụ ndi ejikọrọ n'ịntanetị n'ụzọ pụrụ iche.

Ngwánrọ ọjọọ (Malware/malicious software) - Ngwánrọ emere iji na-eme omume achọghị n'igweọrụ gị. Nje kọmputa bụ ngwánrọ ọjọọ. Otú a ka ọ dịkwa nye ngwáọrụ ndị na-ezu ohi passwodu, ndi na-enyo gị na nzuzo, ma ọ bụ ndị na-ehichapụ data gị.

Usoro arụmọrụ (Operating System) - Ngwánrọ na-eme ka ngwánrọ ndị ọzọ niile di n'kọmputa ma ọ bụ igweọrụ rụọ ọrụ nke ọma. Windows, Linux, Android, HarmonyOS na OS X na iOS nke Apple mepụtara bụcha omumatụ nke usoro arụmọrụ.

Ihe njikwa paswodu (Password manager) - Ngwáọrụ na-emepụta ma na-echekwa paswodu ka i nwee ike iji ọtụtụ passwoodu dị iche iche na site dị iche iche na-enweghi uru ọ bara iburu ha n'isi.

Okwu ngafe (Passphrase) - Passphrase na-adị ogologo karịa paswodu, nke na-abụkarị otu okwu.

Kọmputa nkeonwe (Personal computer) - Kọmpụta e nwere ike iji eme ọtụtụ ihe.

PGP (Pretty Good Privacy) - Nke a bu otu n'ime mmeputa mbụ ama ama nke public key cryptography iji nyere ndị na-ekwupụta okwu na ndị ọzọ aka ichekwa nzikọrịta ozi ha.

(Proxy) – Ngwa server ma ọ bụ appliance nke na-arụ ọrụ dị ka nnọ n'etiti nke arịrịọ sitere n'aka ndị ahịa na-achọ ihe si na server ndị na-enye ihe ndị ahụ. Ngwa proxy server na-arụ ọrụ n'aha onye ahịa mgbe ọ na-ezipụ arịrịọ, na-ekpuchi ezi ebe arịrịọ ahụ sitere na-erute na server nwere ihe a na-arịọ.

Ajụjụ nchekwa (Security question) - Ajụjụ metụtara paswodu nke naanị gị kwesịrị ịma azịza ya.

Ngwánrọ (software) - Aha mkpokọta maka ngwa application, script na programme niile ndị na-arụ oru n'igweọrụ.

(Transmission Control Protocol) - Usoro nzikọrịta ozi nke na-eme ka ngwánrọ application dị iche iche na igweọrụ kọmputa zikọrịtaa ozi na netwọkụ.

Telnet (Teletype network) – Telnet bụ ngwa protocol nke client ma ọ bụ server na-enye ohere ịnweta ọnụ nke sysem ndị dịpụrụ adịpụ na netwọk mpaghara ma ọ bụ ịntanetị.

Tor - Ngwánrọ efu na nke mepere emepe maka nzikọrịta ozi na-amaghị aha. E wepụtara aha a site n'mkpọokwu aha ngwanrọ izizi bu "The Onion Router".

Nkwenye uzo abụọ (Two Factor Authetication) - 2FA bụ ụzọ iji mee ka ndị ọrụ kọwaa onwe ha nye onye na-eweta ọrụ site n'ịchọ ngwakọta nke ụzọ nnyocha abụọ dị iche iche. Ndị a nwere ike ịbụ ihe onye ọrụ maara (dịka paswodu ma ọ

bụ PIN), ihe onye ọrụ nwere (dịka ngwa token ma ọ bụ ekwentị), ma ọ bụ ihe e jikọtara ma ọ bụ enweghị ike ikewapụ n'onye ọrụ (dịka akara mkpịsị aka ha).

URL (Uniform Resource Locator) - Adreesị ibe web nke a na-akpo webpage.

UDP (User Datagram Protocol) - Usoro nzikọrịta ozi a na-eji na intaneti niile maka mgbasa ozi dị mkpa ime n'oge dịka ịkpọghachi video ma ọ bụ DNS lookup.

Virtual Private Network - A na-eji VPN banye n'ịntanetị site na ọwara ezoro ezo. ISP gị, ma ọ bụ onye ọbụla na-esi imi na Wi-Fi efu ị na-eji enweta web, nwere ike ịhụ naanị njikọ gị na ọrụ VPN ahu, ebe webụsaịtị ị na-eleta ga-edetu naanị njikọ sitere na server VPN. Nhọrọ dị iche iche nke VPN dị, site n'ihe ị chọrọ.[164]

Nje Kọmpụta (Computer virus) – nje PC bụ mpempe code nwere ikike ịmụba onwe ya ma na-enwekarịkwa mmetụta dị njọ, dịka imebi usoro kọmputa ma ọ bụ imebi data.

Proxy dabere na web (Web-based proxy) - Webụsaịtị nke na-ahapụ ndị ọrụ ya inweta weebụsaịtị ndị ọzọ, webusaiti e gbochiri ma ọ bụ nke a na-enyocha. Ọtụtụ oge, prọxy web a ga-ahapụ gị ka i denye adreesị web (ma ọ bụ URL) na webpage, wee gosigharịa adreesị weebụ ahụ n'ibe proxy ahụ. Ọ dị mfe iji karịa ọtụtụ ngwaọrụ ngafe-nnyocha ndị ọzọ.

164 https://ssd.eff.org/module/choosing-vpn-thats-right-you