Ukraine

	2016	2017
Internet Freedom Status	Partly Free	Partly Free
Obstacles to Access (0-25)	8	9
Limits on Content (0-35)	11	16
Violations of User Rights (0-40)	19	20
TOTAL* (0-100)	**38**	**45**

* 0=most free, 100=least free

Population:	45 million
Internet Penetration 2016 (ITU):	52.5 percent
Social Media/ICT Apps Blocked:	Yes
Political/Social Content Blocked:	Yes
Bloggers/ICT Users Arrested:	Yes
Press Freedom 2017 Status:	Not Free

Key Developments: June 2016 – May 2017

- Several popular Russian platforms were blocked on national security grounds, including social networks VKontake and Odnoklassniki (see **Blocking and Filtering**).

- Ukrainian authorities imprisoned social media users for up to fiv years for expressing views deemed threatening to Ukraine's territorial integrity, while Russian-backed separatist authorities in Luhansk sentenced a blogger to fourteen years in prison (see **Prosecutions and Detentions for Online Activities**).

- Renowned independent journalist Pavel Sheremet of the *Ukrayinska Pravda* website was murdered in a car bomb attack in Kyiv, likely in retaliation for his reporting (see **Intimidation and Violence**).

Editor's Note

On March 16, 2014, Russian military forces presided over an illegal referendum in Crimea to justify Russia's annexation of the territory from Ukraine. On March 27, 2014, the General Assembly of the United Nations issued a non-binding resolution calling the referendum invalid and urging member states and international organizations not to recognize any such change in Crimea's status. As of this report, Ukraine and a vast majority of countries recognize neither the Russian-organized referendum nor Crimea as part of the Russian Federation.

Freedom on the Net focuses on internet freedom developments as they pertain to internet users within each of the 65 countries under study. This report focuses primarily on the overall status of internet freedom in Ukraine from June 2016 through May 2017. Due to the ongoing crises in the region, events in Crimea during this time are generally excluded from this report and do not directly affect the analysis, assessment, or score of internet freedom in Ukraine published here. To the extent that Crimea is mentioned in the report, it is to acknowledge and describe the connection between internet freedom developments in Crimea and those elsewhere in Ukraine. Events in parts of the Donbas that are outside of government control are included in the report and do affect the analysis, assessment, and score of internet freedom in Ukraine.

Introduction

Internet freedom declined in Ukraine following unprecedented censorship of Russian online platforms and the murder of leading independent online journalist Pavel Sheremet.

Despite a period of optimism following the Revolution of Dignity in 2014 that ousted former President Viktor Yanukovych, internet freedom in Ukraine steadily deteriorated in the ensuing period of conflict Russian-backed armed separatists took control of the eastern regions of Donetsk and Luhansk in 2014, and rebel-led administrations in the occupied areas continued to engage Ukrainian forces in 2017, despite international attempts to broker a ceasefire [1]

Content manipulation by trolls favoring both sides of the dispute flourishe   on social media, and the Ukrainian authorities used the ongoing conflic to justify increasing incursions on internet freedom. In an unprecedented act of censorship, President Petro Poroshenko blocked several popular online platforms entirely, including social network VKontakte, on grounds that they posed a threat to national security. Ukrainian authorities also continued blocking websites deemed anti-Ukrainian, while separatist forces in the occupied regions restricted content deemed supportive of the Ukrainian government or Ukrainian cultural identity.

Social media users were punished for expressing separatist ideas, with several users imprisoned by Ukrainian authorities for up to fiv years. Separately, a 14-year sentence was handed to a blogger in the so-called Luhansk People's Republic. Online journalists and bloggers continued to face digital and physical security threats. In the gravest attack from the period of coverage, veteran journalist Pavel Sheremet was murdered in car bomb attack in the capital, Kyiv, likely in retaliation for his work as an independent online journalist. Journalists reporting from the conflic zone were also subject to doxing attacks, with their personal details leaked online.

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1   Ukrainian Internet Association, "Research of the Internet audience", (in Ukrainian) accessed on April 4, 2017, http://inau.ua/sites/default/files/file/1701/iv_kvartal_2016.pp

Though the ongoing conflic and information war with Russia pose significan challenges, Ukrainian civil society continues to have an important presence online. Activists used social media to coordinate volunteer support for the military, assist internally displaced populations, encourage oversight of officia   and institutions, and expose biased or manipulative information.

Obstacles to Access

Internet penetration continued to grow in 2017. Access to the internet remains affordable for most of the population. The   market is diverse, and state-owned providers no longer dominate the market. Inevitably, Ukraine's telecommunications market has suffered due to economic hardships in the country and the crisis following Russia's annexation of Crimea and later, the upheaval in eastern Ukraine.

Availability and Ease of Access

Key Access Indicators		
Internet penetration (ITU)[a]	2016	52.5%
	2015	49.3%
	2011	28.7%
Mobile penetration (ITU)[b]	2016	133%
	2015	144%
	2011	121%
Average connection speeds (Akamai)[c]	2017(Q1)	12.8 Mbps
	2016(Q1)	12.3 Mbps

[a] International Telecommunication Union, "Percentage of Individuals Using the Internet, 2000-2016," http://bit.ly/1cblxxY.
[b] International Telecommunication Union, "Mobile-Cellular Telephone Subscriptions, 2000-2016," http://bit.ly/1cblxxY.
[c] Akamai, "State of the Internet - Connectivity Report, Q1 2017," https://goo.gl/TQH7L7.

Internet penetration in Ukraine continues to grow steadily, due in part to diminishing costs and increasing ease of access, particularly for mobile internet. Local statistics said that internet penetration had reached 63 percent in 2016, slightly higher than figure   published for the same period by the ITU (see Availability and Ease of Access: Key Indicators).[2]

Infrastructure is more developed in urban areas, though the urban-rural divide has narrowed slightly over time. Internet penetration in rural areas rose from 45 percent in 2015 to 54 percent in 2016, according to one estimate.[3] Most people access the internet from home or work, though many cafes and restaurants provide free Wi-Fi. Access is also common in public libraries, schools, shopping malls, and airports. Internet cafes still exist, but their popularity has waned. Monthly subscriptions are fairly affordabl   for most of the population, with monthly fixed-lin   broadband costing as low as UAH 80-130 (US$4-5), and monthly mobile broadband costing as low as UAH 40-70 (US$1.50-$2.50) in 2017.

Mobile internet use continued to grow, with 6.1 million Ukrainians accessing the internet using a

2   Ukrainian Internet Association, "Research of the Internet audience", (in Ukrainian) accessed on April 4, 2017, http://inau.ua/sites/default/files/file/1701/iv_kvartal_2016.ppt
3   Kiev International Institute of Sociology, "Dynamics of the Internet Usage in Ukraine: February - March, 2016", accessed on April 4, 2017, http://www.kiis.com.ua/?lang=eng&cat=reports&id=621http://www.kiis.com.ua/?lang=eng&cat=reports&id=621

www.freedomonthenet.org

smartphone in 2016.[4] An estimated 35 per cent of the population owned a smartphone.[5] Mobile operators were granted 3G licenses in 2015, greatly facilitating mobile internet use. While speed and coverage remains relatively poor compared to mobile data services in other countries,[6] the 3G network continued to expand to more towns and cities in 2017.[7]

Restrictions on Connectivity

In late spring and summer of 2014, Russian and pro-Russian forces occupied the Crimean peninsula, and later took control of parts of the Donetsk and Luhansk regions. Along with gaining political control, separatist forces also attempted to disrupt or regulate access to telecommunications. While some disruptions in internet and mobile connectivity were caused by military activity, especially in eastern Ukraine (for example, cell towers or internet cables damages by explosions),[8] in some cases there was direct pressure on internet service providers (ISPs) from rebel militias and Russian-supported authorities, causing them to take down or block particular services, such as Ukrainian news websites in Donetsk,[9] Luhansk,[10] and Crimea[11] (see Blocking and Filtering).

De facto authorities of the self-proclaimed Donetsk People's Republic (DPR) and Luhansk People's Republic (LPR) ramped up pressure against Ukrainian ISPs still operating in the region.[12] In October 2016, the de facto authorities in Luhansk issued a decree mandating that internet service be supplied only by local "state-owned" providers. Users across the region experienced a temporary internet outage on the day following the announcement, the cause and extent of which remains unclear.[13] Ukraine's largest ISP, UkrTelecom, was forced out of Donetsk in March 2017 after de facto authorities there seized the company's Donetsk offic   The sudden departure left around 200,000 users without a landline phone connection and mobile internet, forcing them to choose another provider.[14] Following the exit of UkrTelecom, internet traffic in the occupied territories is now largely

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4   Gemius, "Онлайн-аудитория и самые популярные сайты в Украине за июль," (Online audience and the most popular websites in Ukraine, July data), August 18, 2016, http://www.gemius.com.ua/vse-stati-dlja-chtenija/onlajn-auditorija-i-samye-populjarnye-sajty-v-ukraine-za-ijul.html

5   "Користувачі смартфонів є 35% українців - дослідження," (35 per cent of Ukrainians own smartphones - study) *RBC Ukraine*, September 12, 2016, accessed on April 4, 2017, https://www.rbc.ua/ukr/lnews/polzovatelyami-smartfonov-vlyayutsya-35-ukraintsev-1473682956.html

6   "В Україні мобільний інтернет один із найгірших у світі - OpenSignal" (In Ukraine, mobile internet one of the worst in the world - OpenSignal) *Hromadske*, August 17, 2016, accessed on April 4, 2017, https://hromadske.ua/posts/v-ukraini-mobilnyi-internet-odyn-iz-naihirshykh-u-sviti-opensignal.

7   Pavel Krasnomovets, "Lifecell, "Киевстар" и Vodafone запустили 3G в Черкассах - одном из последних областных центров без нового стандарта", (Lifecell, Kyivstar and Vodafone launched 3G in Cherkasy - one of the last oblast centers without a new standard) *AIN*, March 16, 2017, https://ain.ua/2017/03/16/3g-v-cherkassax.

8   "Війна за зв'язок: що відбувається на сході України," [War for connectivity: what is happening in eastern Ukraine] Tech Today, MTS Productions, September 19, 2014, http://bit.ly/1RiaEeO.

9   "В «ДНР» ввели цензуру в интернете," ["DNR" Introduces Internet Censorship] ZN.ua, May 30, 2015, http://bit.ly/1PQ7yO3

10   Tetyana Lokot, "Ukrainian Separatists Block 100+ News Websites in 'Lugansk People's Republic'," *Global Voices*, January 14, 2016. https://globalvoices.org/2016/01/14/ukrainian-separatists-block-100-news-websites-in-lugansk-peoples-republic/.

11   "В Крыму отключают украинские новостные сайты," [Ukrainian news websites blocked in Crimea] *Hromadske Radio*, August 12, 2014, http://bit.ly/1L6Ym8j.

12   "Привет" от "ДНР"? У клиентов ахметовской "Vega" в оккупированном Донецке пропал доступ к Интернету," ("Hello" from "DPR"? Clients of Akhmetov-owned Vega disconnected from Internet in the occupied Donetsk) *Ostrov*, August 2, 2016, http://www.ostro.org/donetsk/society/news/505346/.

13   "Інтернет-провайдер Vega заявляє про захоплення офісу в окупованому Донецьку," (Internet provider Vega claims its offi   was seized in the occupied Donetsk) *Detector Media*, January 24, 2017, http://detector.media/infospace/article/122513/2017-01-24-internet-provaider-vega-zayavlyae-pro-zakhoplennya-ofisu-v-okupovanomu-donetsku

14   «Укртелеком» Ахметова в ОРЛДО припиняє роботу через захоплення", (Akhmetov's Ukrtelekom stops operating in the occupied territories of Luhansk and Donetsk regions) Ekonomichna Pravda, March 1, 2017, https://www.epravda.com.ua/news/2017/03/1/622149/.

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routed through Russia. [15]

These disruptions remained local in part because Ukraine's diverse internet infrastructure makes it resilient to disconnection. The backbone connection to the international internet in Ukraine is not centralized, and major ISPs each manage their own channels independently, though the formerly state-owned UkrTelecom remains dominant (see ICT Market). Ukraine's backbone internet exchange, UA-IX, allows Ukrainian ISPs to exchange traffic and connect to the wider internet. The country has a well-developed set of at least eight regional internet exchanges, as well as direct connections over diverse physical paths to the major western European exchanges.[16]

ICT Market

The Ukrainian telecommunications market is fairly liberal and undergoing gradual development. Overall, approximately 6,000 providers and operators of telecommunications operate in Ukraine, according to the National Commission for the State Regulation of Communications and Informatization (NCCIR).[17]

The state previously owned 93 percent of the largest telecom company and top-tier ISP, UkrTelecom, but the company was privatized in March 2011.[18] Authorities were investigating alleged irregularities in the privatization agreement during the reporting period, though the company denied involvement and said the probe would not affec service.[19]

UkrTelecom is still the largest ISP in the country. Other telecommunications providers are dependent on leased lines, since UkrTelecom owns the majority of the infrastructure, and many alternative providers lack resources to build their own networks. However, UkrTelecom does not exert any pressure or regulatory control over other ISPs.

Other major ISPs in Ukraine include Volia, Triolan, Datagroup, and Vega.[20] Kyivstar (owned by Dutch VimpelCom Ltd) is the second largest ISP,[21] and one of three major players in the mobile communications market, along with Vodafone Ukraine, and "lifecell" (formerly "life"), owned by Astelit, whose main shareholders are the Turkish company Turkcell and Ukrainian System Capital Management. Together, these companies hold 94.6 percent of the mobile communications market.[22]

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15   "В "ДНР" полностью перешли на российский интернет-трафик," ("DNR" completely switched to Russian internet traffi   *Strana.ua*, March 7, 2017, http://bit.ly/2qM200A.

16   Jim Cowie, "Syria, Venezuela, Ukraine: Internet Under Fire," Dyn Research, February 26, 2014, http://www.renesys.com/2014/02/internetunderfire .

17   National Commission for the State Regulation of Communications and Informatization, http://nkrzi.gov.ua/index.php?r=site/index&pg=55&language=uk

18   92.8 percent of shares sold to ESU, a Ukrainian subsidiary of the Austrian company EPIC. See "Укртелеком продан," [Ukrtelecom Sold] Dengi.Ua, March 11, 2011, http://bit.ly/1Vq9ALT. ESU was acquired by Ukrainian fir   System Capital Management in 2013. http://en.interfax.com.ua/news/economic/404675.html

19   "SCM confirm readiness to defend its property rights to Ukrtelecom, 3Mob in court," *Kyiv Post,* May 23, 2017, https://www.kyivpost.com/ukraine-politics/scm-confirms-readiness-defend-property-rights-ukrtelecom-3mob-court.html

20   Illia Kabachynsky, "Рейтинг успішності інтернет-провайдерів-2015," (Ranking of successfulness of internet providers-2015) *Forbes Ukraine*, April 30, 2015, accessed on April 4, 2017, http://bit.ly/2oAFVVJ

21   Ibid.

22   Olga Karpenko, "В Украине почти 55 млн абонентов мобильной связи," [Ukraine has almost 55 million mobile subscribers] AIN, July 31, 2012, http://bit.ly/1FKMuIE.

Ukrchastotnagliad, the Ukrainian frequencies supervisory center, reports that 86 operators have licenses to provide satellite communication services in Ukraine. Companies providing internet access using satellite technologies in Ukraine include Ukrsat, Infocom-SK, Spacegate, Adamant, LuckyNet, Ukrnet, and Itelsat. With the exception of Infocom-SK,[23] all of these companies are privately owned.[24]

There are no direct barriers to entry into the ICT market, but any new business venture faces obstacles including bureaucracy and corruption, as well as the legal and tax hurdles common to the Ukrainian business environment. In particular, the Ukrainian ICT market has been criticized for its difficu licensing procedures for operators—under the 2003 Law on Communications, operators are required to have a license before beginning their activities. Regional ISPs are usually smaller local businesses, and regional dominance largely depends on business and other connections in a specifi region, making the market prone to corruption.

Regulatory Bodies

The ICT sector is regulated by the National Commission for the State Regulation of Communications and Informatization (NCCIR). Members of the NCCIR are appointed by the president of Ukraine.[25] The 2003 Law on Communications does not guarantee the commission's independence, and the lack of transparency surrounding appointments has raised concern in light of widespread corruption in the political system and the lucrative nature of business in the ICT sector. Critics say NCCIR decisions and operations also lack transparency. A newly appointed NCCIR head vowed to reform the regulator in 2015.[26]

Limits on Content

The conflict with Russian-backed separatists in eastern Ukraine has driven authorities to censor online content perceived to undermine Ukraine's standing in the conflict. Several Russian online platforms were blocked in this coverage period, and dozens of Ukrainian websites have been censored in the rebel controlled Donetsk and Luhansk regions. Despite the restrictions, the internet remains relatively diverse. Though pro-Russian trolls are active online, locals actively track and expose online manipulation attempts.

Blocking and Filtering

In the past, Ukrainian authorities rarely blocked online content. However, as the conflic between Ukrainian forces and Russian-backed separatists in eastern Ukraine continued into its fourth year, President Petro Poroshenko declared in May 2017 that several Russian-owned platforms had been added to a sanctions list and were to be blocked on national security grounds.[27] Ukrainian ISPs were ordered to block social media platforms VKontakte and Odnoklassniki, which were previously widely used in Ukraine. Also blocked was Yandex, the Russian-speaking world's most popular

23   Infocom-SK was founded in 1991 jointly by state-owned Ukrtelecom and Controlware, a German telecommunications company. Infocom, "History," accessed on June 15, 2012, http://bit.ly/1FIrp1N.

24   OpenNet Initiative, "Ukraine," https://opennet.net/research/profiles/ukrain .

25   National Commission on Regulation of Communications and Informatization, accessed on April 5, 2017, http://bit.ly/1OaChbb.

26   "НКРСИ должна стать независимой — глава ведомства," [NCCIR must become independent—head of regulator] Delo, May 26, 2015, http://bit.ly/1Lmv5Iy.

27   "In new sanctions list, Ukraine blocks Russian social media sites," *Washington Post,* May 16, 2017, http://wapo.st/2htxHN4.

search engine, and mail.ru, a popular email service. These platforms remained blocked in late 2017. President Poroshenko claimed the measures were necessary to protect against cyberattacks and data collection by Russian authorities.[28] Other international platforms such as Facebook and Twitter remain freely available and gained significantl more users following the Revolution of Dignity in 2014 (see Digital Activism).[29]

The blocking of Russian platforms follows the introduction of a cybersecurity decree and an information security decree in February 2017, both of which envision broader state powers to block content online. The decrees call for the development of legal mechanisms to block, monitor, and remove content deemed threatening to the state.[30] In June 2017, the Ministry for Information Policy released a blacklist of 20 illegal websites deemed to incite interethnic enmity. Most websites on the list are news outlets publishing content sympathetic to de facto authorities in the occupied Donbas region.[31]

Ukrainian authorities continued blocking websites that were deemed to contain Russian propaganda. In July 2017, the Security Service of Ukraine (SBU) announced that it blocked 10 websites supposedly created by Russian agents for the purpose of spreading anti-Ukrainian propaganda, though the specifi websites were not identifie in the statement.[32] The SBU described the websites as being part of Russia's hybrid war against Ukraine.[33]

De facto authorities in occupied eastern Ukraine separately block Ukrainian resources, particularly Ukrainian news websites.[34] In May 2015, the self-proclaimed Donetsk People's Republic (DPR) instituted an offici blacklist of websites banned on its territory, though the list is not public and it is unclear to what extent DPR officia have been able to enforce it.[35] In January 2016, separatist authorities in neighboring Luhansk blocked access to over 100 media websites by pressuring local ISPs to implement censorship orders.[36]

Copyright-infringing material is sometimes blocked. A cyberpolice unit established in 2015 ordered blocks on pirated material during the coverage period, including a popular fil exchange service.

Content Removal

The Ukrainian government sometimes forces third parties to remove politically sensitive content. The SBU targeted web-hosting company NIC after the company failed to comply with a request to

28   "In new sanctions list, Ukraine blocks Russian social media sites," *Washington Post,* May 16, 2017, http://wapo.st/2htxHN4.

29   Ministry for Information Policy, Ukraine, "List of prohibited websites," accessed November 1, 2017, http://mip.gov.ua/files pdf/perelik-saitiv.pdf.

30   Yuliya Zabelina, "Боротьба з неугодними або з Росією: що стоїть за доктриною інформаційної безпеки," (Fight with unwelcome or Russia: what is behind the information security doctrine) Detector Media, March 1, 2017, http://bit.ly/2nYm9AB.

31   Ministry for Information Policy, Ukraine, "List of prohibited websites," accessed November 1, 2017, http://mip.gov.ua/files pdf/perelik-saitiv.pdf.

32   Security Service of Ukraine, https://ssu.gov.ua/ua/news/1/category/2/view/3685#.2veayF96.dpbs; Net Freedom, "SBU blocks 10 sites for anti-Ukrainian propaganda" July 12, 2017, http://netfreedom.org.ua/sbu-zablokovano-10-sajtiv-z-antyukrainskoju-propagandoju/.

33   Tetyana Lokot, "Ukrainian Separatists Block 100+ News Websites in 'Lugansk People's Republic'," Global Voices, January 14, 2016. https://globalvoices.org/2016/01/14/ukrainian-separatists-block-100-news-websites-in-lugansk-peoples-republic/.

34   "Боевики «ДНР» блокируют интернет-сайты, выступающие против терроризма и сепаратизма," ["DNR" fighter block internet websites speaking against terrorism and separatism] CRiME, September 30, 2014, http://crime.in.ua/node/6462.

35   "В «ДНР» ввели цензуру в интернете," ["DNR" Introduces Internet Censorship] ZN.ua, May 30, 2015, http://bit.ly/1PQ7yO3.

36   Tetyana Lokot, "Ukrainian Separatists Block 100+ News Websites in 'Lugansk People's Republic'," Global Voices, January 14, 2016. https://globalvoices.org/2016/01/14/ukrainian-separatists-block-100-news-websites-in-lugansk-peoples-republic/.

remove fiv   allegedly anti-Ukrainian websites in April 2015. SBU office   subsequently seized hosting servers at four NIC data centers in Kyiv, causing 30,000 unrelated Ukrainian websites to go offli temporarily. [37] No similar incidents were publicly reported during the period of coverage.

In April 2017, the Ukrainian parliament passed a law that will require hosting service providers to limit access to webpages containing unauthorized reproductions of certain categories of copyrighted material on the request of the copyright owner, if the webpage has been notifie   of the infringing content and failed to remove it. The hosting provider can hide the page without a court order, but court approval is required within ten days. Providers risk liability for noncompliance.[38] The law was intended to support the Ukrainian cinema industry.[39]

Ukraine's criminal code currently mandates punishments for "unsanctioned actions with information stored on computer devices or networks."[40] ISPs could be obligated to remove or block the offensiv or illegal content within 24 hours.

Media, Diversity, and Content Manipulation

Online media in Ukraine is generally less constrained by economic pressure and owner interests than the mainstream media. The ubiquitous use of social networks, particularly Facebook, by journalists, politicians, and activists facilitates diversity and pluralism online. However, online journalists, commentators, and internet users have been pressured to self-censor, especially on topics directly related to the Russian-backed insurgency in the east, and on the themes of separatism, terrorism, and patriotism. Self-censorship has been more pronounced in the parts of eastern Ukraine occupied by pro-Russian forces and in Crimea, where internet users and journalists have faced attacks,[41] abuse, and intimidation for expressing pro-Ukrainian positions.

The Ukrainian authorities sometimes intimidate online outlets perceived to be pro-Russian. In June and July 2017, law enforcement office   and the SBU raided the offic   of *Strana* and *Vesti*, two Ukrainian online news outlets with a pro-Russian stance. The SBU stated that the searches were part of an investigation into the alleged disclosure of state secrets, though *Strana* denied being involved in such activity. Observers have speculated that the raids were an attempt to pressure and intimidate the outlets. Both websites remain accessible. [42]

Media professionals perceive progovernment manipulation of online discussions as the most pervasive internet freedom issue in Ukraine, according to a recent survey.[43] Journalists and ICT users in government-controlled areas increasingly faced backlash for criticizing the government or

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37   Anna Poludenko-Young, "Ukraine's Security Service Takes Down 30,000 Websites to Fight 'Pro-Russian Propaganda'," Global Voices, April 28, 2015, http://bit.ly/1M47yqs.

38   Baker McKenzie, Intermediaries Now Liable for Third Party Online Copyright Infringements in Ukraine, http://www. bakermckenzie.com/en/insight/publications/2017/05/intermediaries-online-copyright-infringements/.

39   "Між захистом і цензурою. В Україні регулюють інтернет-піратство досудовим методом," (Between protection and censorship. Internet piracy is to be regulated by pre-court procedure in Ukraine) Internet Freedom, April 3, 2017, http:// netfreedom.org.ua/mizh-zakhystom-i-cenzuroju-v-ukrajini/.

40   Articles 361, 362, 363 of Ukraine's Criminal Code, http://zakon1.rada.gov.ua/laws/show/2341-14/ page 11.

41   "У Луганську сепаратисти викрали журналіста і пограбували офіс інтернет-сайту," [In Luhansk, separatists kidnap journalist, rob internet website offi   ] Radio Svoboda, July 16, 2014, http://bit.ly/1MKcSSA.

42   Net Freedom, "New searches of Strana.ua and Vesti," Augst 11, 2017, http://netfreedom.org.ua/novi-obshuky-strana-ua-ta-lypnevi-obshuky-vestej-chomu-sylovyky-neefektyvni/.

43   Internews Ukraine, "Результати опитування щодо ризиків Інтернет-свободи в Україні," (Results of the survey on the risks of internet freedom in Ukraine), http://internews.ua/2017/01/netfreedom-survey/

military. Progovernment actors harassed Hromadske, an independent Ukrainian online TV outlet, in retaliation for the outlet's coverage of the conflic in eastern Ukraine. A Facebook post by the joint staff of Ukraine's military claiming that Hromadske had exposed the position of Ukrainian troops was shared hundreds of times in the span of fiv   minutes by accounts that abused Hromadske journalists. Such a high level of engagement was unusual for the joint staff' Facebook page, and an investigation into the activity revealed that groups of progovernment trolls and a bot farm, which can automate fake accounts to feign grassroots engagement, were reportedly involved.[44] Hromadske journalists said they were targeted because they exposed poor conditions faced by Ukrainian troops in the combat zone.

The Ukrainian online information landscape is also subject to manipulation by actors appearing to represent Russian interests. Fabricated or intentionally misleading information presenting Kremlin-friendly narratives is regularly circulated in online news articles targeting Russian-speaking audiences, including Ukrainians. StopFake, a local platform created to debunk fake news and propaganda online, regularly identifie   examples of Russian language fake news on topics concerning Ukraine. The articles follow a similar pattern, presenting false information purporting to highlight various failures attributed to the Ukrainian government,[45] Ukraine's failing relationship with the European Union,[46] as well as false information purporting to highlight Ukrainians' and Crimeans' acceptance of Russia's annexation of Crimea.[47] The articles often firs appear on Russian outlets, including state media outlets, and sometimes reappear on Ukrainian online news websites.[48]

Kremlin-aligned trolls actively target Ukrainian audiences on social media. In a new tactic, trolls were observed posing as enthusiastic Ukrainian patriots in the past year, attempting to sow distrust within Ukrainian society. Observers noted that the troll accounts operate in intricate networks, and are often highly active in Ukrainian patriot groups on social media, sometimes even acting as page administrators. The trolls used symbolic Ukrainian images in profil   pictures, and typically sought to depict the Ukrainian government as failing their citizens, often calling for them to be violently overthrown. Observers have noted that their target audience appears to be patriotic Ukrainians engaged with political affairs [49]

More traditional forms of pro-Russian manipulation were also ongoing, including mass commenting and paid posts on social media and fake websites.[50] The Ukrainian Ministry of Information has attempted to respond in kind to the organized Russian information manipulation effort   by creating its own "internet army," but its actions have not received much praise from Ukrainian internet users.[51]

Digital Activism

The Ukrainian social media sphere, which expanded dramatically following the Revolution of Dignity, continued to thrive in 2017. Facebook and Twitter have become crucial platforms for debate about

44   Gorchinskaya, K. "The rise of Kremlin-style trolling in Ukraine must end," Guardian, July 27, 2016, http://bit.ly/2at6nYA.

45   For example: http://www.stopfake.org/en/fake-ukraine-to-introduce-food-ration-cards/

46   For example: http://www.stopfake.org/en/fake-most-ukrainians-not-interested-in-visa-free-travel-to-eu/.

47   For example: http://www.stopfake.org/en/fake-crimea-benefits-economically-from-reunification-with-russia

48   For example: http://www.stopfake.org/en/fake-most-ukrainians-not-interested-in-visa-free-travel-to-eu/.

49   "The troll network," Texty, October 4, 2016, http://texty.org.ua/d/fb-trolls/index_eng.html .

50   Aric Toler, "Inside the Kremlin Troll Army Machine: Templates, Guidelines, and Paid Posts," Global Voices, March 14, 2015, http://bit.ly/1j3kMNw.; Aric Toler, "Fake 'Ukrainian' News Websites Run by Russian 'Troll Army' Offshoots" Global Voices, November 19, 2014, http://bit.ly/1P7EkfB.

51   Tetyana Lokot, "Ministry of Truth' Recruits Ukrainians for 'Internet Army," Global Voices, Feb 25, 2015, http://bit.ly/1OJEyua.

Ukrainian politics, reforms, and civil society. By the end of 2016, the Facebook audience in Ukraine reached 7.2 million users.[52] However, Russian social networks VKontakte and Odnoklassniki were blocked in May 2017, inhibiting the potential for mobilization using these popular platforms (see Blocking and Filtering).

Activists and volunteers mobilized during the 2014 Revolution of Dignity and found new uses for online platforms,[53] such as fundraising for military and volunteer battalions, providing information and assistance to refugees, and crowdfunding Ukrainian book translations.[54] Citizen journalists used open-source tools and data to track the presence of Russian troops and military equipment in Ukraine in 2015.[55] One online platform, LetMyPeopleGo, regularly updates a list of Ukrainian citizens held captive by Russian forces and campaigns for their release.[56] A separate social media campaign in March 2017 advocated for the release of Ukrainian university professor Igor Kozlovsky, who was imprisoned in Donetsk on charges of spying and weapons manufacture.[57]

Activists have launched several online initiatives advocating for people with disabilities,[58] and women's rights. Povaha, an online platform launched in 2016, seeks to elevate professional women through online advocacy campaigns and the creation of an online database of Ukrainian women experts. The database is available to local and international media outlets seeking expert input for media segments.[59] Another online campaign, #яНебоюсьСказати (#IAmNotAfraidToSayIt), was made popular in July 2016 by activist Anastasiya Melnychenko after she shared personal stories of sexual harassment and abuse. Thousands of women from Ukraine and Russia mobilized to share similar stories using the hashtag, with the aim of shifting cultural attitudes in countries which often dismiss or blame women for inviting sexual violence.[60]

Many officia   in the Ukrainian government use Facebook and Twitter heavily to report on their actions and reforms. Officia   regularly engage with comments in attempt to take into account public opinion, helping to increase accountability.[61]

52   Oleg Dmytrenko, "Українська аудиторія Facebook демонструє фантастичні темпи росту – збільшилась на третину всього за 7 місяців," (Ukrainian Facebook audience demonstrates fantastic speed of growth - it got bigger by third in just 7 months) Watcher, November 25, 2016, http://bit.ly/2kwFycn

53   Tetyana Bohdanova, "How #EuroMaidan and War with Russia Have Changed Ukraine's Internet," *Global Voices*, January 9, 2015, http://bit.ly/1M49gl8; Tymur Vorona, "Украина — родина волонтеров, или как IT-добровольцы помогали стране в 2014 году," [Ukraine—the land of volunteers, or how IT-volunteers helped the country in 2014] *AIN*, Jaunary 8, 2015, http://ain.ua/2015/01/08/556357.

54   http://komubook.com.ua/

55   Tetyana Bohdanova, "Outing the Russian Military in Eastern Ukraine," *Global Voices*, March 19, 2015, http://bit.ly/1O5Tp0r; Aric Toler, "Fact Checking the Conflic   in Eastern Ukraine," *Global Voices*, March 3, 2015, http://bit.ly/1YRnKVo.

56   LetMyPeopleGo, https://www.facebook.com/LetMyPeopleGoUkraine.en/. Accessed on August 1, 2016.

57   "#FreeKozlovskyy. У соцмережі флешмоб із закликом визволити вченого з полону "ДНР"," (#FreeKozlovskyy. A flashmo   in social media to call for release of scholar from the captivity in "DPR") *Ukrayinska Pravda. Zhyttia*, March 15, 2017, http://bit.ly/2nrKmlC.; https://www.hrw.org/news/2016/07/21/they-do-exist

58   Dostupno.UA, https://www.facebook.com/ДоступноUA-1617803701799770/. Accessed on August 1, 2016; "Користувачі соцмереж у різних шкарпетках підтримують людей із синдромом Дауна," (Users of social networks support people with Down syndrome by wearing differen   socks) *Ukrayinska Pravda. Zhyttia*, March 21, 2017, http://bit.ly/2nrILfL.

59   "Women and digital advocacy in post Euromaidan Ukraine," *Global Voices,* January 1, 2016, https://rising.globalvoices.org/exchange/2016/01/27/women-and-digital-advocacy-in-post-euromaidan-ukraine/.

60   Anastasiya Melnychenko, "The woman who wasn't afraid to say it," Meduza, July 8, 2016, https://meduza.io/en/feature/2016/07/08/the-woman-who-wasn-t-afraid-to-say-it.

61   "Каких украинских министров можно читать в Facebook," [Which Ukrainian Ministers You Can Follow on Facebook] *AIN*, March 17, 2014, http://bit.ly/1OaG20h.

Violations of User Rights

Authorities have cracked down on social media users in an attempt to curb anti-Ukrainian rhetoric online, imprisoning users for so-called "separatist" or "extremist" expression. Physical violence remains a concern, with the murder of renowned journalist Pavel Sheremet in Kyiv. Cyberattacks, predominantly initiated by foreign agents, have targeted various state agencies, infrastructure, and state registries.

Legal Environment

The right to free speech is granted to all citizens of Ukraine under Article 34 of the constitution, although the state may restrict this right in the interest of national security or public order, and in practice it is frequently violated. Part 3 of Article 15 of the constitution forbids state censorship.

There is no specifi law mandating criminal penalties or civil liability for ICT activities, but other laws, such as those penalizing extremist activity, terrorism, or calls to separatism, apply to online activity. Article 109(2)-(3) of the Ukraine Criminal Code outlines jail terms of three to fiv years for threats to the territorial integrity and sovereignty of Ukraine.[62] Article 110 of the Criminal Code criminalizes public appeals for the infringement of Ukraine's territorial integrity, including any made online, with maximum penalties of up to fiv years in prison.

Ukraine's law on State of Emergency contains broad provisions that allow for the introduction of "special rules" concerning the connection and transmission of information through computer networks during a state of emergency.[63] It is unclear what this provision could mean in practice, though it is likely to allow for some limitation in access to the internet

A cyberpolice unit within the Ministry of Interior was created in 2015 as part of a broader police reform that was largely welcomed.[64] The unit was tasked with battling internet crime, including international money laundering schemes and digital piracy (see Blocking and Filtering).

Prosecutions and Detentions for Online Activities

Multiple internet users in Ukraine were fined detained, or sentenced to prison for up to fiv years in 2016 and 2017.[65] Separately, separatist administrations controlling territories in the east sentenced a blogger to 14 years in prison, in part for his alleged cooperation with Ukrainian security forces.

The Ukrainian authorities punished activity on social media pages and accounts they considered to contain "calls to extremism or separatism" or otherwise threaten the territorial integrity of Ukraine. The security services stated in February 2017 that criminal proceedings had been initiated against 30 administrators of social media groups that "disseminated calls for the overthrow of Ukraine's constitutional order, mass upheavals, and other illegal actions."[66]

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62   Criminal Code of Ukraine (2001, Amended 2016), http://bit.ly/2fzpeqb.

63   Legislation of Ukraine, State of Emergency http://zakon3.rada.gov.ua/laws/show/1550-14.

64   Tetyana Lokot, "Watch Out, Internet! Ukraine Is Getting Its Own Cyberpolice," Global Voices, October 12, 2015. https://globalvoices.org/2015/10/12/watch-out-internet-ukraine-is-getting-its-own-cyberpolice/.

65   Isaac Webb, "Ukrainian Social Media Users Get Five Years in Prison For 'Supporting Separatism'," Global Voices, February 7, 2017, http://bit.ly/2oNREAt.

66   Security Service of Ukraine, "СБУ ефективно протидіє антиукраїнській пропаганді в Інтернеті (відео)," (Security Service of Ukraine is effectivel counteracting anti-Ukrainian propaganda on internet (video) February 13, 2007, http://bit.ly/2oQHG0M.

- In November 2016, a resident of Vinnytsia in western Ukraine was sentenced to three years in prison under Part 1 of Article 110 of Ukraine's Penal Code, which criminalizes public appeals for the infringement of the territorial integrity of Ukraine. The man allegedly posted calls on social media for a referendum to create an independent "Vinnytsia People's Republic."[67]

- In a separate November case, a court in Lviv sentenced a man to three years in prison under Article 110 of the Penal Code for posting calls on VKontakte for citizens to seize power in Kyiv and alter Ukraine's borders. The man reportedly had only 22 followers.[68]

- A resident of Kharkiv in Ukraine's east was sentenced in January 2017 to three-and-a-half years in prison for publishing social media posts in support of pro-Russian separatists in eastern Ukraine. The SBU reported that the man had violated Article 110 of the Penal Code by writing posts designed to threaten Ukraine's statehood and advocating for the creation of a new state called Novorossiya within Ukraine's borders.[69]

- A Volyn resident was sentenced to fiv   years in prison in February 2017 for posting propaganda in support of de facto authorities in Donetsk and Luhansk on social media.[70]

- Zhytomyr-based freelance journalist Vasily Muravitsky was arrested in August 2017 on charges of high treason, threatening Ukraine's territorial integrity, supporting acts of terrorist organizations, and inciting hatred. The SBU said that Muravitsky had published "anti-Ukrainian materials" on six Russian news websites and that he was an "information mercenary" working for Russian authorities. Muravitsky, who faces a maximum sentences of 15 years in prison, was apparently singled out on the basis of a contract he had with the Russian state news agency Rossiya Segodnya.[71]

Authorities in the separatist controlled territories of Donetsk and Luhansk also punished online journalists and bloggers. Ukrainian blogger Eduard Nedelyaev, who wrote about daily life in Luhansk, was sentenced to 14 years in prison in November 2016. Nedelyaev was accused of defaming residents of the region, inciting hatred of Russia, and endangering national security by cooperating with Ukrainian security services.[72] The rebel administration in Luhansk detained another blogger, Gennadiy Benitsky, from November 2016 to March 2017 on charges of using social media to spread extremist material that dishonored local residents, and disseminating offensiv   material about Luhansk's de facto authorities.[73]

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67   "Вінничанина ув'язнено на три роки за антиукраїнські заклики в інтернеті," (Resident of Vinnytsia sentenced to three years for anti-Ukrainian calls online) *Detector Media*, November 24, 2016, http://bit.ly/2pi92tC.

68   "Жителя Львова осудили на 3 года за сепаратистские посты «ВКонтакте»" (Resident of Lviv convicted for three years in prison for separatist posts in VKontakte) *AIN*, November 9, 2016, http://bit.ly/2pOTHE1.

69   "In Kharkiv, a distributor of separatist materials sentenced to 3.5 years," *Detector Media,* January 11, 2017, http://detector.media/infospace/article/122118/2017-01-11-na-kharkivshchini-rozpovsyudzhuvacha-separatistskikh-materialiv-zasudzheno-na-35-roki-sbu/.

70   "A resident of Volin convicted of spreading propaganda for DNR & LNR," *Detector Media,* February 3, 2017, http://detector.media/infospace/article/122819/2017-02-03-volinyanina-zasudzheno-umovno-za-propagandu-dnrlnr-u-sotsmerezhakh/.

71   https://cpj.org/2017/08/ukrainian-journalist-in-custody-on-anti-state-char.php; https://rsf.org/en/news/two-more-victims-information-war-ukraine

72   RSF "Two more victims in Ukraine's information war," https://rsf.org/en/news/two-more-victims-information-war-ukraine; "В окупованому Луганську затримали блогера, який відкрито підтримував Україну," (Blogger who openly supported Ukraine was detained in occupied Luhansk) *112*, November 30, 2016, http://bit.**ly/2pfenld**.

73   "В «ЛНР» взяли в полон ще одного блогера," (Another blogger captured in "LPR") *Hromadske Radio*, December 27, 2016, http://bit.ly/2okcuXb; http://khpg.org/en/index.php?id=1482873596.

Surveillance, Privacy, and Anonymity

There is little information publicly available about surveillance or communication interception. Generally, there is a lack of comprehensive legislative regulation to protect privacy and prevent abuse. The security services can initiate criminal investigations and use wiretapping devices on communications technology, but existing legislation, such as the Law on Operative Investigative Activity,[74] does not specify the circumstances that justify these measures or the timeframe or scope of their implementation.

In December 2013 the NCCIR released a new edition of "Rules for Activities in the Sphere of Telecommunications," which included a problematic paragraph about ISPs and telecom providers having to "install at their own cost in their telecommunications networks all technical means necessary for performing operative and investigative activities by institutions with powers to do so."[75] There is no information available on the extent to which these provisions have been implemented.[76]

From 2002 to 2006, mechanisms for internet monitoring were in place under the State Committee on Communications' Order No. 122, which required ISPs to install so-called "black-box" monitoring systems. This was ostensibly done to monitor the unsanctioned transmission of state secrets. Caving to pressure from public protests and complaints raised by the Internet Association of Ukraine and the Ukrainian Helsinki Human Rights Union, the Ministry of Justice abolished this order in August 2006.

There is currently no obligatory registration for either internet users or prepaid mobile phone subscribers, and users can purchase prepaid SIM-cards anonymously, as well as comment anonymously on websites where the website owner does not require registration.

Intimidation and Violence

The ongoing conflic in eastern Ukraine continues to expose online activists and journalists to threats, and a high profil   murder was reported during the coverage period of this report.

On July 20, 2016, Pavel Sheremet, a veteran Belarusian journalist working for Ukraine's *Ukrayinska Pravda* website, was killed in a car bomb explosion in Kyiv.[77] Sheremet covered state corruption and the conflic in the east for the website, among other topics; he had endured state pressure and jail time during a career that spanned Belarus, Russia, and Ukraine. Sheremet's colleagues at *Ukrayinska Pravda* believe he was murdered in retribution for his professional activity.[78] The case remained unsolved in mid-2017.

Other journalists faced violence for reporting on corruption online. In March 2017, security guards outside the mansion of the head of the Zaporizhzhya regional government attacked journalists who were filmin   for the online anti-corruption platform *Nashi Groshi* (Our Money), damaging their

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74   Law of Ukraine on Operative Investigative Activity, http://zakon5.rada.gov.ua/laws/show/2135-12. Accessed Aug 1, 2016.

75   NCCI, Rules for Activities in the Sphere of Telecommunications.

76   Oleg Shynkarenko, Зашморг на інтернет [A Noose on the Internet], INSIDER, January 8, 2014, http://www.theinsider.ua/business/52bac42dd8f4d/.

77   Christopher Miller, "Prominent Belarusian-Born Journalist Pavel Sheremet Killed In Kyiv Car Blast," *Radio Liberty*, July 20, 2016, http://www.rferl.org/a/ukraine-journalist-pavel-sheremet-killed-car-bomb/27868777.html.

78   Alec Luhn, "Car bomb kills pioneering journalist Pavel Sheremet in Kiev," The Guardian, July 20, 2016, https://www.theguardian.com/world/2016/jul/20/ukraine-journalist-pavel-sheremet-killed-kiev-car-bombing.

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equipment.[79]

Journalists reporting on the conflic face retaliation from both Ukrainian nationalist partisan forces and Russian-backed separatists. Both sides used the tactic known as doxing, deliberately publishing the target's personal information to encourage harassment.

In August 2016, a group of Ukrainian nationalist activists calling themselves *Myrotvorets* (Peacemaker) updated a public list containing the leaked contact details of thousands of journalists who were accredited to report in the self-proclaimed Donetsk People's Republic,[80] labelling them as "accomplices of terrorists."[81] Journalists on the list said the exposure obstructed their effort to report objectively on the conflict and several received threats.[82] The doxing caused widespread consternation among the international media community,[83] but met with little criticism from Ukrainian official   Some, including Minister of Internal Affair Arsen Avakov, applauded the move. Prosecutors in Kyiv investigated the leaks, though no progress was reported, and the list remained available online in mid-2017.

Russian-backed separatists also published a list of journalists deemed "Ukrainian Propagandists" on the separatist news website *Tribunal* in December 2016, including leaked copies of the journalists' photos and press cards.[84]

Foreign correspondents were also harassed in the past year. In February 2017, a user-generated section of the online Ukrainian news outlet *Korrespondent* published personal details about foreign journalists, including their license plates and transportation routes in the conflic zone. The information was subsequently reposted on *Ukrayinskyy Vybir* (Ukrainain Choice), a pro-Russian online platform headed by Viktor Medvedchuk, a friend of Russian president Vladimir Putin.[85] The information was removed from both platforms after media NGOs complained.

Other vulnerable groups have been subject to online abuse, sometimes because their own online behavior or connections helped assailants to identify them as a target. LGBTI (lesbian, gay, bisexual, transgender, or intersex) people have been baited on social media and lured to in-person meetings where they were beaten. The attackers have been known to post video footage of the incidents online, forcing victims to state their name, address, and other personal details. Entire groups on social media platform VKontakte are devoted to "exposing" LGBTI people. Participants in the groups tend to conflat   LGBTI people and pedophiles, justifying the harm they inflict [86]

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79   "Охорона голови Запорізької ОДА напала на журналістів «Наших грошей»," (Security guards of the head of Zaporizhzhya oblast state administration attacked journalists from "Our groshi"), Institute of Mass Information, March 21, 2017, http://bit.ly/2oVYWid.

80   Миротворец" оприлюднив новий список журналістів," ("Myrotvorets" published a new list of journalists), *Detector Media*, August 20, 2016, http://bit.ly/2phJ7lF.

81   Aric Toler, Tetyana Lokot, "Ukrainian Activists Leak Personal Information of Thousands of War Reporters in the Donbas," *Global Voices*, May 11, 2016, https://globalvoices.org/2016/05/11/ukrainian-activists-leak-personal-information-of-thousands-of-war-reporters-in-the-donbas/.

82   Halya Coynash, "Ukrainian journalist who twice confronted Putin targeted by Myrotvorets Centre vigilantes," Human Rights in Ukraine, May 25, 2016, http://www.khpg.org/en/index.php?id=1464127138.

83   "Journalists figh back against Ukrainian activists who doxed thousands of war correspondents in the Donbas," *Meduza*, May 11, 2016, https://meduza.io/en/news/2016/05/11/open-letter-demands-ukrainian-action-over-publication-of-undercover-journalists-information.

84   "Сайт донецьких сепаратистів продовжує публікувати персональні дані журналістів українських ЗМІ," (The website of Donetsk separatists continues publishing personal data of Ukrainian journalists), *Detector Media*, December 27, 2016, http://bit.ly/2ofoM2q.

85   Gala Skliarevskaya, "Кто и зачем опубликовал маршруты передвижения журналистов в зоне АТО?," (Who and why published routes of journalists' transportation in the ATO area?), *Detector Media*, March 11, 2017, http://bit.ly/2nYhL3u.

86   https://globalvoices.org/2017/05/12/diversity-interrupted-anti-gay-crusades-mar-ukraines-tolerant-facade/

Technical Attacks

Ukrainian business, government websites, and national infrastructure are frequently subject to cyberattack. Observers note that most of the attacks appear to originate in Russia. Hacker collectives like the pro-Russian Cyber Berkut and the nationalist Ukrainian Cyber Forces defaced websites and leaked information to discredit their perceived foes during the reporting period. In March 2017, the Ukrainian Cyber Forces claimed that it had taken 173 separatist websites offli   in three years, though it remains unclear what methods the group used.[87]

Ukraine was significantl   disrupted by a ransomware attack in June 2017. The malicious software, dubbed Petya, encrypted entire hard drives and requested payment in order to restore access.[88] The virus spread across the country on June 27, the eve of the anniversary of the adoption of Ukraine's constitution, destabilizing telecommunications companies, government ministries, banks, and other vital infrastructure. Radiation-measuring systems at the site of the Chernobyl nuclear disaster were also temporarily inhibited before the attack was contained on June 28.[89] Observers speculated that the intention of the attack may have been political rather than financial Ukrainian security services said that the software lacked an effectiv   mechanism for securing ransom funds, indicating that the real purpose was to destroy data and disrupt institutions across Ukraine, a goal they attributed to Russia.[90]

President Poroshenko had previously accused Russia of running a covert cyberwar against Ukraine. In December 2016, Poroshenko claimed that Russia had launched at least six thousand cyberattacks against Ukrainian state websites in the span of two months.[91] The websites of the Ministry of Finance and the state Treasury were reportedly among those affected Ukrainian infrastructure has been consistently targeted by cyberattacks in the past, including the railway service,[92] the state aviation service, [93] and state registries. [94] Poroshenko established a National Cybersecurity Coordination Centre within the National Security and Defense Council to counter external threats in early 2016.[95]

87   "Українські кібер війська" за три роки заблокували 173 сайти терористів," (Ukrainian cyber forces blocked 173 websites of terrorists over the course of three years), *Detector Media*, March 10, 2017, http://bit.ly/2ofBooQ.

88   "Cyber attack hits Ukraine then spreads internationally," June 27, 20167, https://www.nytimes.com/2017/06/27/technology/ransomware-hackers.html?mcubz=1&_r=0.

89   "Cyber attacks on Ukrainian government and corporate networks halter," *Ukrinform,* June 28, 2017, https://www.ukrinform.net/rubric-polytics/2255698-cyber-attack-on-ukrainian-government-and-corporate-networks-halted.html.

90   "Ukraine points finge at Russian security services in recent cyber attack," *Reuters,* July 1, 2017, https://www.reuters.com/article/us-cyber-attack-ukraine/ukraine-points-finge -at-russian-security-services-in-recent-cyber-attack-idUSKBN19M39P

91   "Росія розв'язала кібервійну проти України - Порошенко," (Russia launched a cyberwar against Ukraine - Poroshenko),*TSN*, December 29, 2016, http://bit.ly/2oW7UMJ.

92   Roman Hankevych, "Мінінфраструктури назвало організаторів хакерської атаки на інформаційну мережу "Укрзалізниці"," (Ministry of Infrastructure named organizers of hacking attack on information network of "Ukrzaliznytsia"), *Zaxid.net*, December 15, 2016, http://bit.ly/2ofS5IA.

93   Yuliya Polikovska, "Сайти міністерства інфраструктури України і Державіаслужби не працюють," (Websites of the Ministry of Infrastructure and State Aviation Service do not work*), Zaxid.net*, December 16, 2016, http://bit.ly/2nvi4GI.

94   "Жодна DDoS-атака на держреєстри не була успішною і не призвела до зміни даних," (None of the DDoS-attacks on state registries was successful and didn't affec the data*), Interfax Ukraine*, February 13, 2017, http://ua.interfax.com.ua/news/general/402947.html.

95   Maya Yarovaya, "Порошенко утвердил стратегию кибербезопасности Украины и создание координационного центра кибербезопасности при СНБО" [Poroshenko finalize Ukraine's cybersecurity strategy and creation of coordination center for cybersecurity within NSDC], *AIN*, March 17, 2016, http://ain.ua/2016/03/17/638654.