



Trinity College Dublin

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

Black Swans? Covid-19, Cybercrime and Large Scale Cyber-attacks in Ireland

Association for Criminal Justice Research and Development, 24th Annual
Conference Online

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Assistant Professor in IT Law

Friday, 8th October 2021

Contents

- **Covid-19, large-scale cyber-attacks and cybercrime as Black Swans?**
 - Cyber exploits (cybercrime) in Covid-19
 - Cyber-attacks against healthcare providers
- **Solutions are complex, but worth the try**
 - Cybercrime and cyberattacks have complex root causes
 - No excuses against trying
- **Conclusions**

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‘Black Swan’ Events

«unpredictable or unforeseen event, typically one with extreme consequences»



Covid 19

Rare
extremely impactful
retrospectively predictable
(N.N. Taleb)

WWI, The
Internet,
9/11...

HSE
incident?

Cybercrime?

Not “a cliché for any bad thing that surprises us.”

Source: <https://www.newyorker.com/news/daily-comment/the-pandemic-isnt-a-black-swan-but-a-portent-of-a-more-fragile-global-system>

Cyber-attacks on the HSE (1/3): Timeline

NCSC
National Cyber Security Centre

2105161000-NCSC

A part of the Department of the Environment, Climate & Communications



NCSC Alert

Ransomware Attack on Health Sector - UPDATE
2021-05-16

- **13/5: suspicious activity Dept. Health network**
 - RAT cobalt strike Beacon (state-sponsored?)
- **14/5: significant incident on HSE systems**
 - Conti Ransomware : data exfiltrated, network encrypted, ransom asked
 - Back to pen and paper
- **By 21/5: Decryption key handled**
- **5/9: Still dealing with consequences**

Source: https://www.ncsc.gov.ie/pdfs/HSE_Conti_140521_UPDATE.pdf; <https://www.bbc.com/news/world-europe-58413448>

Cyber-attacks on the HSE (2/3): headlines

The New York Times

Cyber Attack Suspected in German Woman's Death

Prosecutors believe the woman died from delayed treatment after hackers attacked a hospital's computers. It could be the first fatality from a ransomware attack.



REUTERS

World Business Markets Breakingviews Vide

INTERNET NEWS APRIL 17, 2020 / 12:37 PM / UPDATED A YEAR AGO

Czech hospitals report cyberattacks day after national watchdog's warning

Von der Leyen: Chinese cyberattacks on EU hospitals 'can't be tolerated'

By Samuel Stoltz | EURACTIV.com

23 glu 2020 (updated: 24 glu 2020)

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'It's getting worse': Irish hospital hack exposes EU cyberattack vulnerability

Hackers infiltrated Ireland's health care system, prompting a shutdown. It's not the only target.

Sources: <https://www.nytimes.com/2020/09/18/world/europe/cyber-attack-germany-ransomware-death.html>; <https://www.reuters.com/article/us-czech-cyber-ostrava-idUSKBN21Z1OH>;
<https://www.euractiv.com/section/digital/news/von-der-leven-chinese-cyberattacks-on-eu-hospitals-cant-be-tolerated/>; <https://www.politico.eu/article/irish-hospital-hack-highlights-eus-weak-spots/>

Cyber-attacks on the HSE (3/3): Black Swan?

NEWS ITEM

Cybersecurity in the healthcare sector during COVID-19 pandemic

ENISA provides cybersecurity advice to support Hospitals and the healthcare sector against the increase of phishing campaigns and ransomware attacks during the coronavirus crisis.

Published on May 11, 2020



Source: <https://www.enisa.europa.eu/news/enisa-news/cybersecurity-in-the-healthcare-sector-during-covid-19-pandemic>

NIS Directive 2016/1148

- Securing critical infrastructure
 - OES → health sector (Annex II.5)
 - «appropriate + proportionate technical & organisational measures to manage risks»
- **+ additional obligations (e.g. GDPR)**
- Determined at national level (SI 360/18)
 - Register of OES?

Higher incidence of cybercrime during Covid-19...

thejournal.ie

Contribute : [Support us now](#)

Irish News FactCheck Voices The Good Information Project Covid-19

Garda stats: Domestic violence, drug possession and fraud on the rise during lockdown

Gardaí released the stats today.

Jun 12th 2020, 4:21 PM 9,799 Views 12 Comments

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Population online 24/7

- Home (own devices)
- Distracted / exhausted
- Surge of online shopping

Table 1.1 Recorded crime incidents¹ classified by offence group, annualised² total to Q2 2020 and 2021

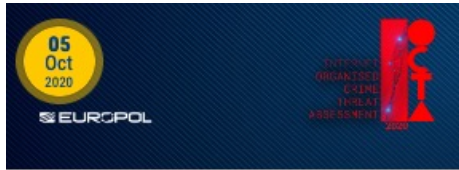
ICCSq offence group	Annualised total to Q2			
	2020	2021	Change	% Change
01 Homicide and related offences	76	56	-20	-26.3
02 Sexual offences	3,014	3,241	227	7.5
03 Attempts/threats to murder, assaults, harassments and related offences	20,482	18,701	-1,781	-8.7
04 Dangerous or negligent acts	8,523	8,449	-74	-0.9
05 Kidnapping and related offences	149	115	-34	-22.8
06 Robbery, extortion and hijacking offences	2,146	1,702	-444	-20.7
07 Burglary and related offences	14,391	9,042	-5,349	-37.2
08 Theft and related offences	60,031	46,800	-13,231	-22.0
09 Fraud, deception and related offences	8,005	11,253	3,248	40.6
10 Controlled drug offences	22,635	22,909	274	1.2
11 Weapons and explosives offences	2,922	2,803	-119	-4.1
12 Damage to property and to the environment	20,419	19,228	-1,191	-5.8
13 Public order and other social code offences	30,876	27,830	-3,046	-9.9
15 Offences against Government, justice procedures and organisation of crime	14,409	10,337	-4,072	-28.3

¹ These statistics are categorised as Under Reservation. This categorisation indicates that the quality of these statistics do not meet the standards required of official statistics published by CSO.

² The annualised figure for a given quarter is the total number of crimes recorded in the 12 months prior to end of that quarter.

Sources: : <https://jrnl.ie/5121435> ; <https://www.cso.ie/en/releasesandpublications/ep/p-rc/recordedcrimeq22021/>

...definitely a White Swan



INTERNET ORGANISED CRIME THREAT ASSESSMENT (IOCTA) 2020

PUBLICATION/DOCUMENT

**Cybercrime
stats =
estimates**

but

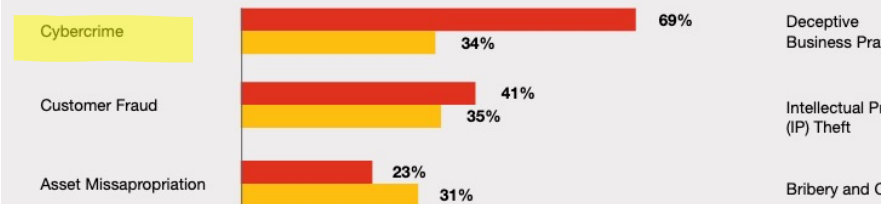
**Ireland
under-
prepared?**

Exhibit 1:

What types of fraud, corruption or other economic crime has your organisation experienced within the last 24 months?

Ireland

Global



Sources: <https://www.europol.europa.eu/activities-services/main-reports/internet-organised-crime-threat-assessment-iocta-2020> ; <https://www.pwc.ie/publications/2020/irish-economic-crime-survey-report.pdf>

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The complex root causes of cybersecurity and cybercrime

Weakest links

- Human users

Dependency

- Tech Supply-chains

Modus operandi

- LEAs

Attack surface

- Connectivity

Pacing issue

- Legislation

Deterrence

- Courts

Interventions (1/3): raising awareness

Weakest links

- Human users

NCSC
National Cyber Security Centre

2004011554-NCSC

A part of Department of Communications, Climate Action & Environment



NCSC Advisory

Working From Home Security Advice
2020-04-08

Scam Warning - phone calls and texts

Home > About Us > Our Departments > Office of Corporate Communications > News-Media

Gardaí are aware people have been receiving calls & texts like this from people posing as members of the Department of Social Protection.

Gardaí or personnel from the Department of Social Protection will never contact you by phone or text to request personal information.

If you or someone you know has received such a phone call or text, we would advise you to report it to the Department's helpline number 1890 800 024 (between 9am and 5pm Monday to Friday).



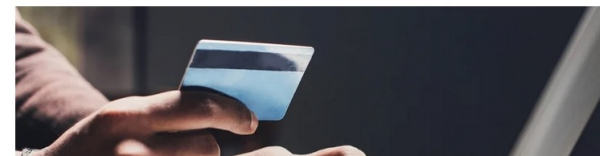
**EUROPEAN
CYBER
SECURITY
MONTH**

RTE NEWS SPORT ENTERTAINMENT BUSINESS LIFESTYLE CULTURE PLAYER TV RADIO

NEWS > IRELAND > World Business Sport Nuacht Programmes RTE Investigates

Public urged to ignore scam calls as cyber fraud incidences increase

Updated / Wednesday, 6 Oct 2021 20:09



Sources: <https://www.garda.ie/en/about-us/our-departments/office-of-corporate-communications/news-media/scam-warning-phone-calls-and-texts.html> ; <https://www.ncsc.gov.ie/pdfs/WFH-Advisory.pdf> ; <https://www.rte.ie/news/ireland/2021/1006/1251055-cyber-crime/>

Interventions (2/3): recent legal initiatives

Pacing issue

• Legislation

Transposition of Directive 2013/40

- Criminal Justice (Offences Relating to Information Systems) Act 2017
 - Criminal Justice (Theft and Fraud Offences) Act 2001
 - Criminal Damage Act 1991

Commitment to ratify Cybercrime Convention (2001)

Man (28) accused of hacking into parking system is first to be charged under new law

David Young is accused of a total of nine offences by gardai from cyber crime bureau

© Mon, Feb 8, 2021, 16:00 | Updated: Mon, Feb 8, 2021, 17:07

Barry Roche Southern Correspondent



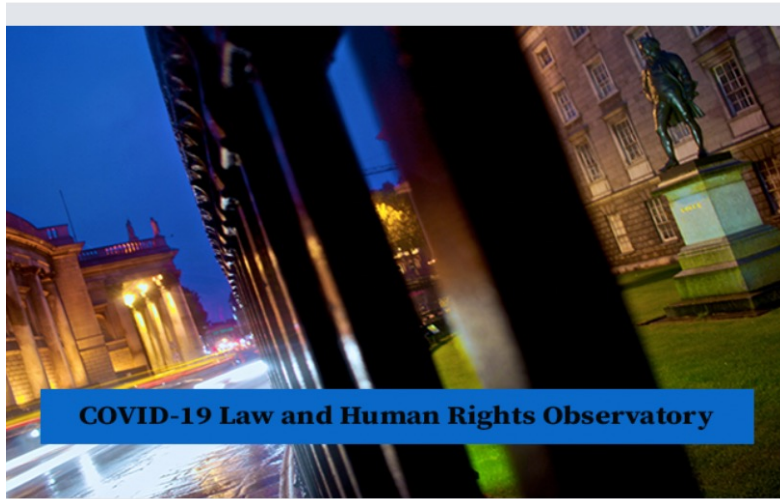
A 28-year-old man has become the first person to be charged under new anti-computer-crime legislation. File photograph: Getty Images

Source: <https://www.irishtimes.com/news/crime-and-law/courts/district-court/man-28-accused-of-hacking-into-parking-system-is-first-to-be-charged-under-new-law-1.4479150>

Interventions (3/3): studying recent legal initiatives

Appraising the prevention and deterrence of cybercrime in Ireland through the law

COVID-19 Law and Human Rights Observatory



Attack surface

Publications: <https://www.tcd.ie/law/2020.21/Data-Protection-and-COVID19%20Report.pdf>; <https://tcdlaw.blogspot.com/2020/07/covid-19-and-cyber-security-averting.html>



The Law School warmly congratulates Assistant Professor Maria Grazia Porcedda on becoming a recipient of funding is awarded to a PI at Assistant or Associate Professor level, for research projects to be undertaken on (EU/non-EU) plus a €16,650 p/a stipend (to be raised by 4% to €17,316 from 1 October 2021) for a PhD student will act as primary PhD supervisor.

Maria Grazia's Research:

Appraising the prevention and deterrence of cybercrime in Ireland through the law.

Conclusions

- **Large-scale cyber-attacks and cybercrime as White Swans**
 - Cybercrime only got worse during Covid-19
 - Same for cyber-exploits/attacks against healthcare providers
 - Both ‘flourished’ due to underlying, pre-existing weaknesses
- **Solutions are complex, but worth the try**
 - Complex root causes of cybercrime/attacks challenge interventions
 - However, interventions more needed than ever
 - Awareness, legislation and continuous assessment



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Many thanks for your attention

**Email: maria-grazia.porcedda AT
tcd.ie**

Relevant own works on Covid

Porcedda, M.G., Data Protection Implications of ‘under the radar’ data-driven measures for contact logging, contact tracing and health checking, in Data Protection and the Covid-19 Pandemic (Costello, Fennelly and Porcedda) <https://www.tcd.ie/law/2020.21/Data-Protection-and-COVID19%20Report.pdf>

Porcedda, M.G., ‘Maria Grazia Porcedda on the HSE cyber-attack’, TriCon podcast hosted by Alan Eustace, <https://soundcloud.com/tcd-covid-observatory/special-maria-grazia-porcedda-on-the-hse-cyber-attack/s-Tk0qFZILc40> (June 2020).

Porcedda, M.G., ‘Covid-19 and cyber security: averting cybercrime, safeguarding data and protecting people’ (COVID-19 Law and Human Rights Observatory, 31 July 2020) <https://tcdlaw.blogspot.com/2020/07/covid-19-and-cyber-security-averting.html>

Porcedda, M.G., Data Protection Implications of Data Driven Measures Adopted in Ireland at the Outset of the Covid-19 Pandemic, *European Data Protection Law* 2021 (2)

Relevant works on cybercrime & cybersecurity

Porcedda, M.G. and Wall, D.S. (2019), Cascade and Chain Effects in Big Data Cybercrime: Lessons from the TalkTalk hack, proceedings of WACCO 2019: 1st Workshop on Attackers and Cyber-Crime Operations, Held Jointly with IEEE EuroS&P 2019, Stockholm, Sweden, June 20, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3429958

Porcedda, M.G., Patching the Patchwork: Appraising the EU Regulatory Framework on Cyber Security Breaches, Computer Law and Security Review (CLSR), 2018, Vol. 34 (5), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3219902

Porcedda, M. G. Cybersecurity and privacy rights in EU law : moving beyond the trade-off model to appraise the role of technolog (European University Institute, 2017) <https://cadmus.eui.eu/handle/1814/45944>

Relevant forthcoming works

Porcedda, M.G. and Wall, D.S., Modelling the cybercrime cascade effect in data crime, (2021), proceedings of WACCO 2021: 3rd Workshop on Attackers and Cyber-Crime Operations, Held Jointly with IEEE EuroS&P 2021, Vienna, Austria, September 7 (in press)

Porcedda, M.G., *Compatibility of 'under the radar' data-driven measures adopted in Ireland to contain Covid-19 with data protection* (accepted, Northern Ireland Legal Quarterly)

Porcedda, M.G., *Sentencing data-driven cybercrime* (pending review, Computer Law and Security Review)