HUMAN FACTOR IN CYBERSECURITY
ACCA 2025

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22. Maj 2025

Cybersecurity Toolbox for Connected Medical Devices

CYLCOMED

KU Leuven: Legal and Ethical Partner in CYLCOMED Project

- **Role**: Ensures ethical and legally compliant use of innovative solutions to enhance the cybersecurity of connected medical devices (CMDs).
- **Expertise**: Develops an ethical and legal framework addressing privacy, data protection, CMD regulations, and cybersecurity legislation.
- **Track Record**: Renowned for expertise in AI, autonomous systems, data protection, eHealth, ethics & law, intellectual property, media, telecommunications, and cybersecurity. Longstanding partner in large international and interdisciplinary research projects.

CHARITÉ

MEDIACLINICS Wearable Health Applications

fib Niño Jesús

KU LEUVEN CiTiP CENTRE FOR IT & IP LAW

EVIDEN an atos business

XLAB

RGB medical devices

MARTEL innovate

OSPEDALE PEDIATRICO Bambino Gesù

INOV

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CYBERSECURITY INCIDENTS ARE HITTING THE HEADLINES

CYBERATTACK

The cyberattack that has paralysed Barcelona's Hospital Clínic: "No ransom will be paid"

Major Catalan public hospital hopes to resume some activity progressively from Tuesday after serious ransomware attack

Nura Portella
Photo: ACN
Barcelona. Monday, 6 March 2023. 13:07
Updated Tuesday, 13 February 2024. 09:46
Reading time: 2 minutes

Cyber Security News

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Cyberattack News

Transport for London Faces Cyber Attack Operation Distributed

By Balaji N - September 3, 2024

Sections | THE IRISH TIMES | 3° | Subscribe

Health

HSE cyber attack: More than 470 legal proceedings issued against health service after ransomware hit

Leak by Conti, the Russia-based crime group, compromised personal data of almost 100,000 staff and patients

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LATEST STORIES ›

Your top stories on Tuesday: Poll finds Fianna Fáil-Fine Gael the most popular new coalition; Irish troops return from Lebanon

Rod Stewart to play Glastonbury 2025 legends slot: 'I'm proud, ready and able to

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14,889 views | Jun 28, 2019, 05:28am

FDA Warns Of Dangerous Cybersecurity Hacking Risk With Connected Medical Devices

Zak Doffman Contributor
Cybersecurity
I write about security and surveillance.

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NEWS > DEFENSE

Thousands of UK troops hit in suspected Chinese hack on defense ministry

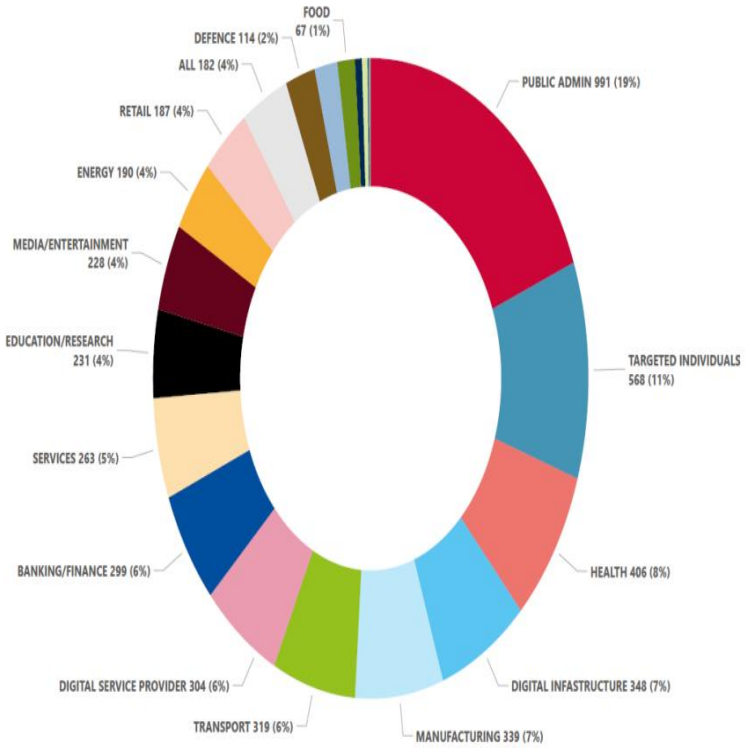
Defense Secretary Grant Shapps briefed the House of Commons Tuesday afternoon — but is avoiding publicly pointing the finger at Beijing.

Home / Tech / Security

First death reported following a ransomware attack on a German hospital

Death occurred after a patient was diverted to a nearby hospital after the Duesseldorf University Hospital suffered a ransomware attack.

THE CYBERSECURITY THREAT LANDSCAPE



92%

of organizations in this research had at least one cyberattack over the past 12 months

$4.7M

is the average total cost for the single most expensive cyberattack experienced over the past 12 months

$1.47M

in disruption to normal healthcare operations was on average the most significant financial consequence from the cyberattack

WHAT IS AT STAKE? DIRE CONSEQUENCES OF CYBERATTACKS

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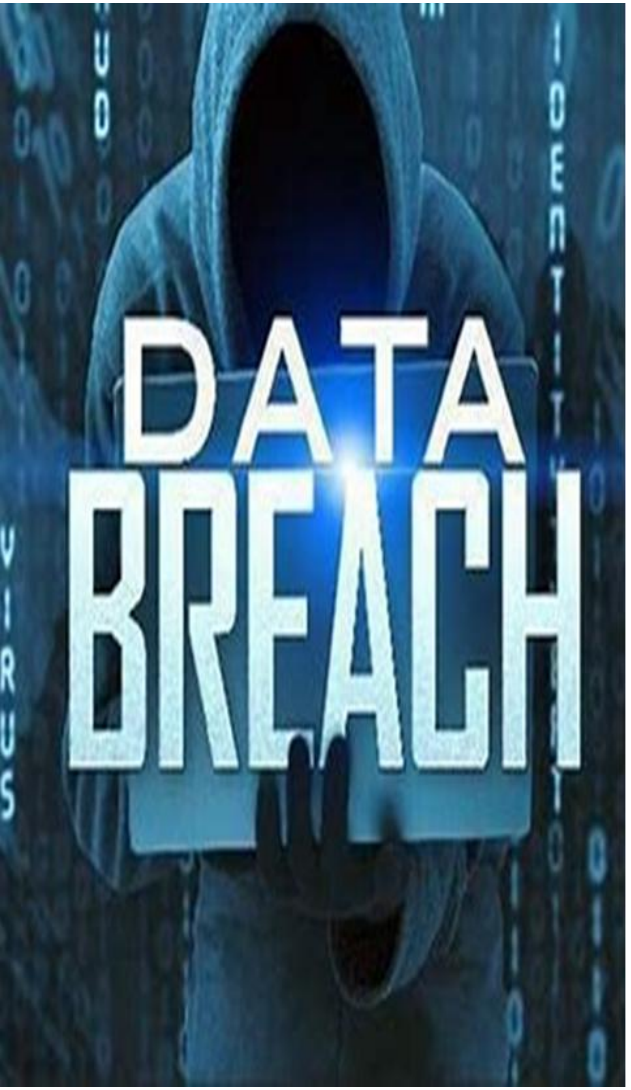

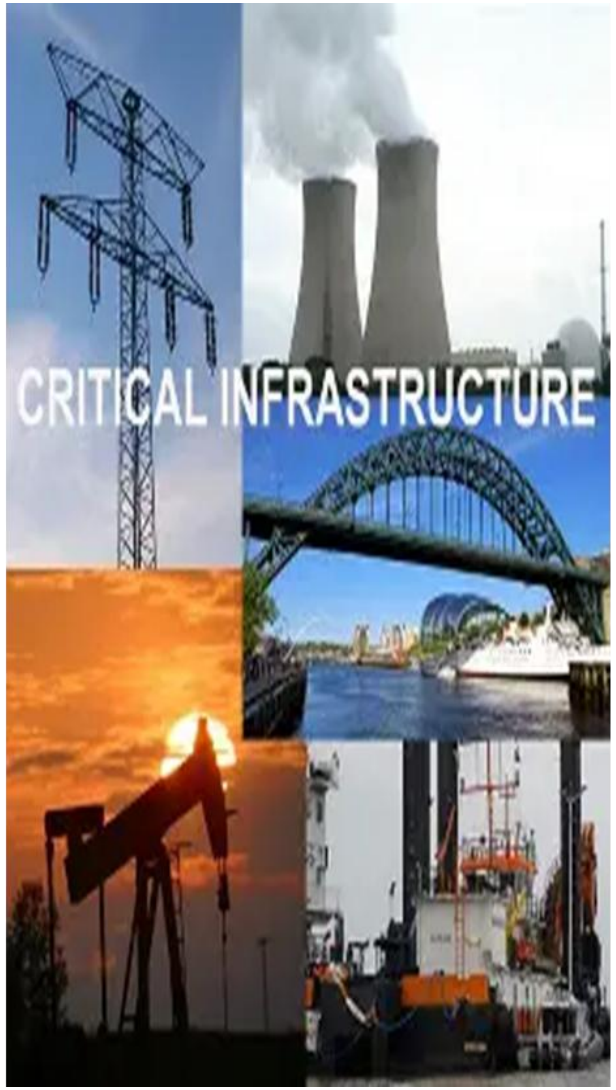

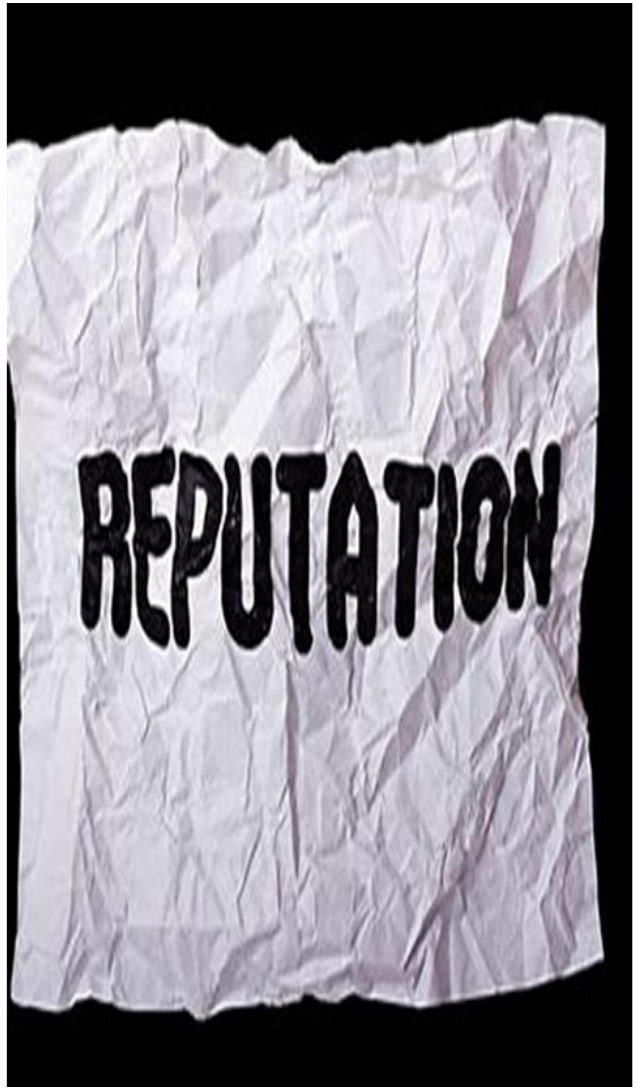

“CURE” TO CYBERSECURITY CHALLENGES - POLICIES

- Cybersecurity Strategy for the Digital Decade
- European Action Plan on the Cybersecurity of Hospitals and Healthcare Providers

“CURE” TO CYBERSECURITY CHALLENGES - REGULATIONS

- Cybersecurity Act (CA)
- Network and Information Systems Directive (NIS2)
- General Data Protection Regulation (GDPR),
- Cyber Resilience Act (CRA)
- Artificial Intelligence Act (AI Act)
- Regulation on the European Health Data Space (EHDS)
- Medical Device Regulation (MDR)
- …….

“CURE” TO CYBERSECURITY CHALLENGES – TECHNICAL MEASURES

- Encryption
- Anonymisation
- Patch Management
- Multi-factor authentication (MFA)
- Least privilege principle
- Firewalls (hardware or software-based)
- Intrusion Detection Systems (IDS)
- Intrusion Prevention Systems (IPS)
- …..

HUMAN FACTOR

HUMAN FACTOR

Human factor contributed to approximately 68% of breaches

Human error remains a critical threat area, consistently ranking highly, if not the top category

WHAT IS HUMAN FACTOR IN CYBERSECURITY ?

SCHOLARLY LITERATURE

- “human factor”
- “human element”
- “human dimension”
- “insider threat”
- “end-user”
- “human resources security”
- …….

REGULATIONS

- NIS2 explicitly mentions the “human factor” in its Recital 78, and “human resource security” (Recital 79)
- Recital 8 of the CSA points out that cybersecurity is not only an issue related to technology but also one where **human behavior** is equally important

HOW TO ADDRESS THE HUMAN FACTOR?

UNDERLYING FORCES SHAPING THE CYBERSECURITY ARCHITECTURE

LACK OF RESOURCES

- NIS investment report highlights significant disparities in investments across critical infrastructure, revealing a gap that threatens the collective goal of a cyber-secure EU
- Healthcare historically faces the underfunding, facing significant trade-offs

LACK OF CYBERSECURITY EXPERTS

- The ISC2 (2024) report estimated that 299,000 cybersecurity professionals are needed to meet EU workforce demands
- Eurobarometer survey highlights the growing cybersecurity talent gap across the EU
- Some sectors, such as healthcare, are even more under pressure

CHALLENGING REGULATORY LANDSCAPE

NIS2

- Risk management measures shall include at least, inter alia, “basic cyber hygiene practices and cybersecurity training”

- Member States shall ensure that the **members of the management bodies** of essential and important entities **are required to follow training**, and shall **encourage** essential and important entities **to offer** similar training to their employees on a regular basis (NIS Article 20)

GDPR, MDR, AI ACT…

TECHNICAL AND “**ORGANISATIONAL**“ MEASURES

OPEN QUESTIONS

- Should cybersecurity legal frameworks incorporate stronger enforcement mechanisms, accountability models, and proactive human risk management strategies to enhance human factor governance?

- Do we need more terminological clarity, coherence, and legal consistency between legal frameworks regarding the human factor?

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THANK YOU FOR YOUR ATTENTION

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