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THREATS IN THE TECHNOLOGICAL FUTURE

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Background

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Ongoing “arms race” of cyber threats and defences against them.

Most visions (e.g. Forbes, WEF, Microsoft) focus on short or intermediate time span. Long-term visions are “safe”:

- *A world with no privacy* - BBC Future 2017: “10 grand challenges we’ll face by 2050”
- *Less about confidentiality…more about integrity and provenance* - WE Forum 2023: “7 trends that could shape the future of cybersecurity in 2030”
- *Credit card thief knows your PIN* - Kaspersky - Secure Futures Magazine 2023: “How will cybersecurity change by 2050?”

Aim: What are the technological trends in the eyes of a young generation of academics with a digital security interest?

RQ1 What assets are perceived to be most critical in the future?

RQ2 What digital threats are perceived to pose a risk to these critical assets?

Information collection

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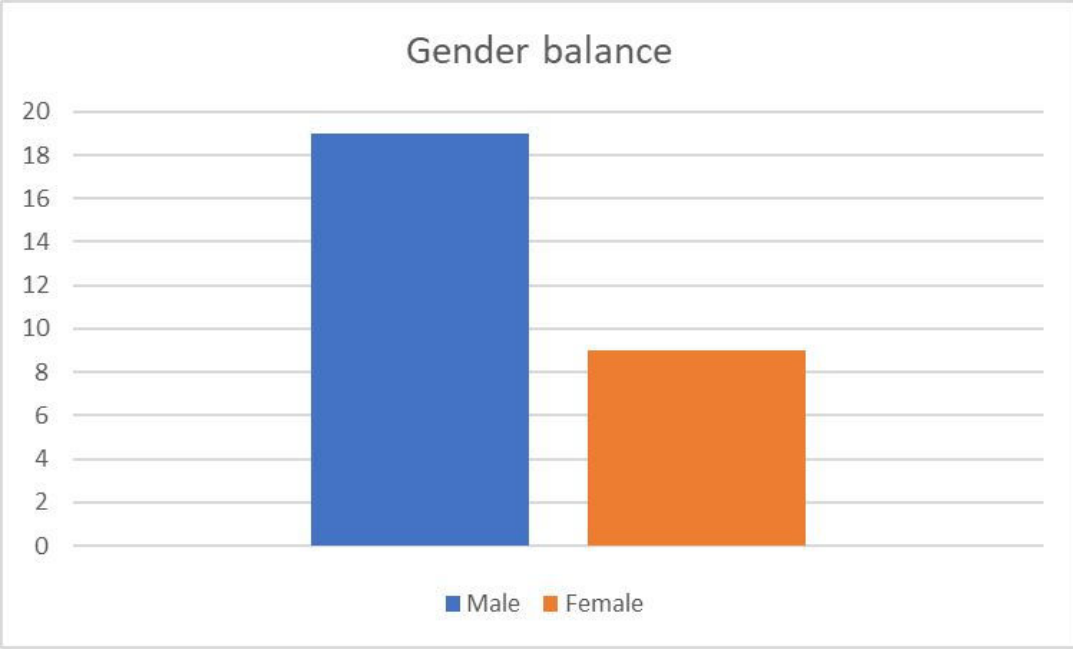
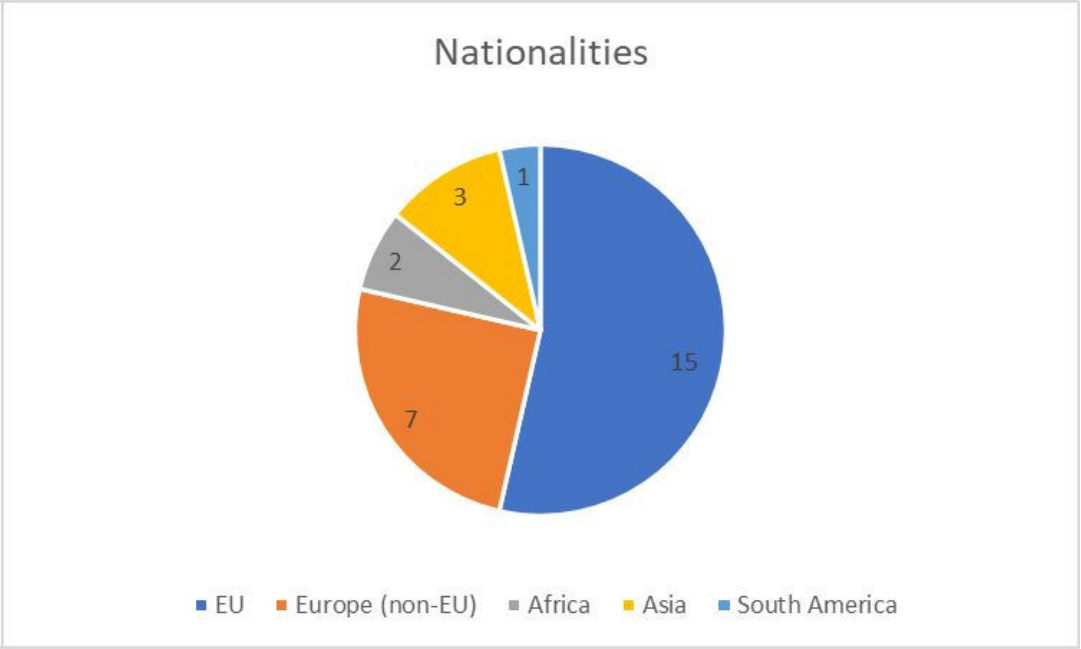
FOSAD 2023 workshop in Bertinoro, Italy 28.8.-1.9.2023 with 28 participants (International School on Foundations of Security Analysis and Design)





Information collection (2)

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We asked the workshop participants to respond to three questions (in groups)

1. What does the digital/technological future look like in 2050?

2. What are the top-3 assets that need to be protected?

3. For each asset from the previous session, please identify three (digital) threats that need to be contained or mitigated

Results overview

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Diverse results within and across groups:

- Pessimistic vs. optimistic
- Physical assets vs. intangible assets
- Specific assets vs. broad assets
- Threats vs. threat vectors vs. impacts

Critical infrastructure (1)

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Increasing interdependency and automation:

- Internet
- Electricity
- Water

Critical infrastructure (2)

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Availability:

- Denial of Service (Dos) attacks
- Supply chain attacks

Confidentiality:

- Mass surveillance

Insider threats, Advanced Persistent Threat (APT) groups

Data (1)

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Variety of interpretations:

- Public data
- Personal data
- Confidential data

Important for automation

Data (2)

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Confidentiality/Privacy:

- Phishing attacks

Correctness:

- Spreading of misinformation

Availability:

- DoS through overloading

Environment

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Ecosystems and natural resources

Availability:

- Overexploitation

Integrity:

- Attacks on Operational Technology (OT)

Life & miscellaneous

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Mental wellbeing and human rights

Threatened by:

- Artificial Intelligence (AI)
- Surveillance
- Monopolies and algorithms

Discussion & conclusion

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Not based on past observed events, but experience of young academics

Critical infrastructure, data, and the environment

Availability at risk

Step towards security by design

Future work:

- Finalising the article and submitting it to a conference/journal
- Conducting a survey to a wider target group (e.g. Youth4Cyber)

Funny fact: Lack of skilled professionals is no longer an issue in 2050

Thanks!

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Source: https://sites.google.com/uniurb.it/fosad/home/fosad-2023