EaP-Connect + CyberEDU workshop, 10-11.2.2022

International cooperation in Cybersecurity (Horizen Europe and NATO SPS options)

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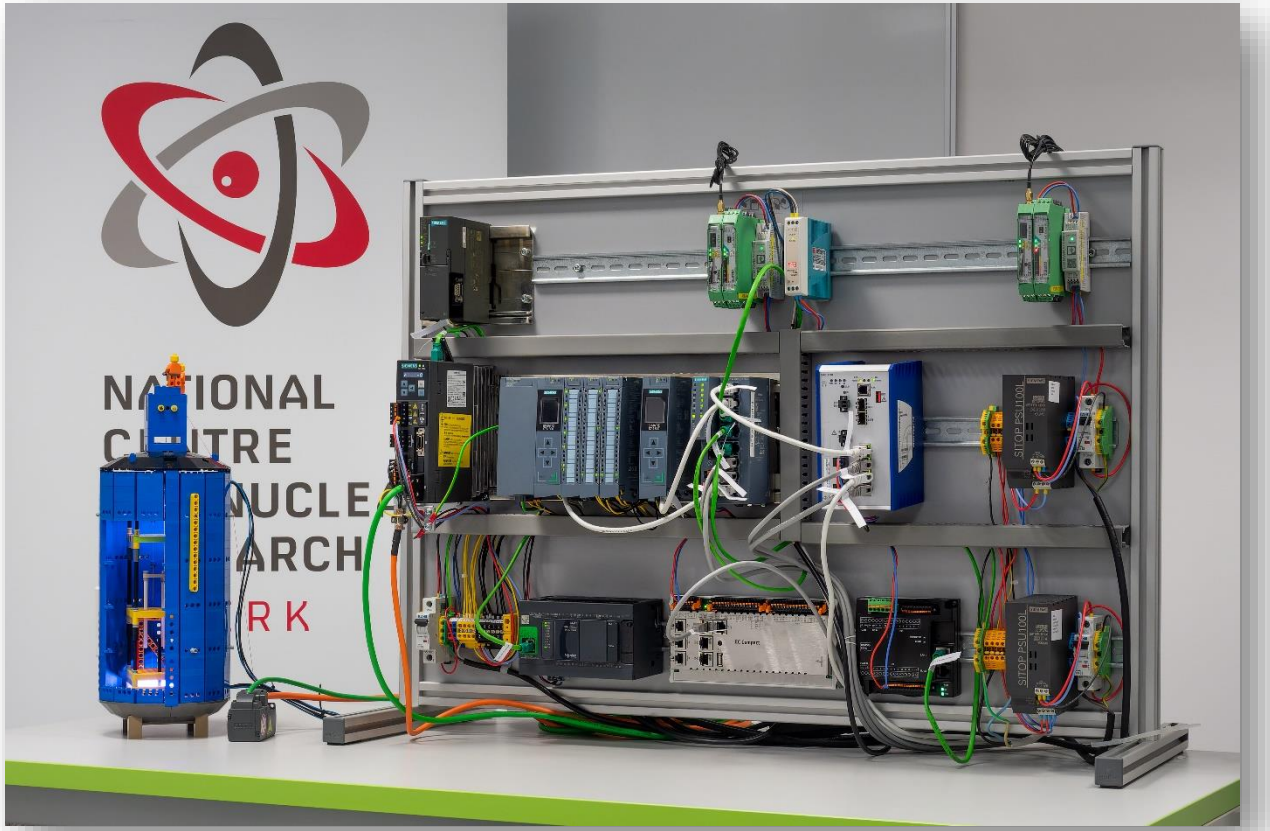
Outline

- NCBJ and its CyberLAB
- Cybersecurity and International Cooperation
- Programmes and Projects (funding options)
- International Organizations
- International initiatives

Narodowe Centrum Badań Jądrowych
National Centre for Nuclear Research
ŚWIERK

- Largest research institute in PL: 1118 FTE, 59 prof., 151 PhD, own PhD School, Hirsh index 141;
- International collaborations with largest laboratories (CERN, DESY, Grenoble, JParc, FAIR, Julich, ESS, JINR, etc), and many universities around the world;
- In 2020: 180 projects including 14 (H2020), eg. 15MEuro TEAMING; 10 (eg. IAEA, NATO);
- Two specialized Project support units, high success rate

CyberLAB created by IAEA CRP project



NCBJ Results/Discoveries

➢ Found vulnerabilities:

- IPV4 zero-day in S7-1500 Siemens PLC - reported via Responsible Disclosure Procedure (CVE-2018-13805);
- New OPC-UA vulnerability S7-1500 PLC (also found by Siemens CERT);
- Zero-day vulnerability in TM241CE24U PLC reported to Schneider Electric;
- NPP Simulator Asherah (result of the whole IAEA CRP collaboration)
- Simulations of cyberattacks on CIs
- Cyberattack detection methods (traffic analysis, honeypots)

➢ Jacek Gajewski:

- 1993-2010 CEENet Secretary General, NATO Consultant for Caucasus;
- 2016-2021 PL-CRP Project Leader, CyberLAB Principal Investigator;

Cybersecurity and International Cooperation

- **Sophistication** of modern cyberattacks (many of **them cross-border** and/or politically motivated) & global interconnection created **the need for international cooperation**.
- Computer security incident response **teams (CSIRTs/CERTs)** are **key actors** to help the community prevent and respond to cyber incidents through incident analysis and response, information sharing and dissemination, and skills training.
- Various international projects, organizations and initiatives have been suggested and implemented to foster the international cooperation of local CSIRT/CERT teams.

Example: Cyberattack on Georgia

(Courtesy: David Tabatadze, GRENA)

- **In end-July 2008 CERT international training in Tbilisi;**
- From Aug 9th, 2008 Georgia under heavy cyberattack;
- Approx. 90% of all gov.ge domain addresses and significant fraction of .ge domain addresses were affected by DDos attacks (e.g. president.gov.ge, mfa.gov.ge, government.gov.ge, www.parliament.ge);
- CERT-Georgia (part of GRENA) undertook obligation to operate as national CERT and made heroic effort to defend their country;
- **CERT-GE contacted CERT-Polska, which offered its help in preventing and filtering attacks; as a quick action they distributed information on attacks to more than 180 CERT teams and other security related bodies all over the world, which analysed the data. In particular, CERT-Estonia provided crucial help by sending their experts to Georgia.**

CI Cybersecurity – an important issue for EaP

- The most vulnerable facilities are **industrial systems**, designed with little thought to security.
- Critical Infrastructures (CI), often have the option for **remote access**, which can be possibly seized by an intruder creating a significant risk.
- As the EaP countries embark on modernization projects and the r**elations** with some neighbours are **tense,** their Critical Infrastructures (eg. Baku-Tbilisi-Ceyhan pipeline) were and are **likely to be be cyberattacked**.
- Building a modern **cybesecurity (c-s) education** and fostering **international cooperation** are key factors to increase the ability of EaP countries to protect their CI infrastructure.
- CI cybersecurity is now widely recognized as a topic for education and research.
- On international level CI c-s is handled by the same organizations as IT c-s.

Programmes, Projects, Funding opportunities

- NATO Science for Peace and Security (SPS) programme;
- EU Programmes;
- Other international cybersecurity funding agencies.

The NATO Science for Peace and Security (SPS) Programme

- Establish and promote collaboration (dialogue, practical cooperation) between **NATO and Partner** countries;
- Mobilize and enhance **R & D** capabilities in topics related to **NATO priorities** - includes: Cyber-Security (prevention, reaction, awareness in IT and OT systems, CI protection);
- SPS offers **funding and support** to **civil** security activities.

SPS Characteristics

- Applications are short and not complicated
- Rapid grant approval (when call is open).
- Low bureaucracy, easy reporting
- Four mechanisms available
- **Look around for project ideas and apply!**

Support Mechanisms

ADVANCED RESEARCH WORKSHOPS

(ARW)

- Grants to organise **expert** workshops where an intense but informal exchange of views at the frontiers of a subject aims at identifying directions for **future actions** (e.g. MYP)
- 2-5 days, 20-50 participants, <40 000 Euro

Support Mechanisms

ADVANCED STUDY INSTITUTES (ASI)

ADVANCED TRAINING COURSE (ATC)

- Grants to organise high-level tutorials of latest developments in a given subject to an advanced-level audience;
- ASI: inviting professor with a series of lectures, summer schools, etc.;
- ATC: interactive, expert networking;
- Typically: 5-7 days, 20-50 pax, <60 000 EURO.

Support Mechanisms

SCIENCE FOR PEACE PROJECTS (MYP)

Grants to collaborate on multi-year applied R&D and Capacity building projects

- Duration: 2 to 3 years;
- Multicountry projects and the participation of young scientists are encouraged;
- Budget ~150-350 kEuro: covers equipment, computers, software, travels and trainings;

EU (HE) Programmes: Digital Europe (7500 Meuro)

Available document: Cybersecurity Work Programme 2021-2022

- Focus on needs of businesses, citizens and public administration
- Cybersecurity is one of 5 pillars of DE, with following objectives:
  - **Development** of advanced cybersecurity **equipment, tools and data infrastructures**
  - **Spreading knowledge** and best practices, building capacity and skills
  - **Deployment** of effective cybersecurity **solutions**
  - Capabilities in support of the NIS Directive;
  - **Building resilience**, risk-awareness, basics levels of cybersecurity;
  - **Enhancing synergies** & coordination between the c-s **civilian** and **defense** sphere.

In Construction:

Cybersecurity Industrial, Technology and Research Competence Centre in Bucharest

EU Programme - Connecting Europe Facility (CEF)

3 CEF sectors: Energy, Telecom, Transport

Each of those sectors publishes „call for proposals”

Example of relevant call:

A Digitised, Resource-Efficient and Resilient Industry 2022

In most of the calls there are 1 or 2 cybersecurity topics

EU Programmes for non-EU countries

- Instrument contributing to Stability and Peace (IcSP), includes cybersecurity and combatting cybercrime
- European Neighbourhood Instrument (ENI), to help EaP countries to define strategic priorities related to the fight against cybercrime
- HE Widening Participation programme (high chances for success)
- Talk to your EUD: Technical Assistance projects possible through EuropAid -> International Partnerships mechanism.

Example: Az-RDI project (2018-2020)

Cybersecurity programmes by other donors

- US National Cyber security Center (NCCIC)
- Regional Internet Registries: RIPE, APNIC,…
- OECD, IAEA, ISOC, IEEE, ITU
- G8 24/7 Cybercrime Network
- World Bank Global Cybersecurity Capacity Program
- External aid agencies (USAID, SI, …)

Cybesecurity-relevant International Organizations

- Inventory
- FIRST
- TF-CSIRT (Trusted Introducer, TI)
- ENISA

Inventory of C-S-relevant International Organizations

- Gov-level: UN: IGF, ITU, NATO/CCDCOE, ENISA, EDA, OECD, ASEAN, INTERPOL;
- Industry: Messsaging/Malware/Mobile/AntiAbuse WG, Network Operators Groups (NOGs);
- Community: FIRST, TF-CSIRT, AP-CERT, Internet Registries (e.g. Ripe), ICANN, G8 24/7 Cybercrime Network, Internet Society (ISOC);
- USA: National Cyber security and Communications Integration Center (NCCIC), US Technology Training Institute (USTTI).

FIRST
Forum of Incident Response and Security Teams

VISION:

- Bring together CSIRT/CERT 602 teams from 99 countries;
- Work together to limit the damage of security incidents;
- Build high level of trust among members.

MISSION:

- Global coordination (also with non-technical stakeholders);
- Provides platforms, means and tools for incident responders;
- Find the right partner to collaborate efficiently;
- Trainings how to react in a fast and efficient manner;
- Data transfer, machine-to-machine communication.

TF-CSIRT
Trusted Introducer

TF-CSIRT offers Public and Accredited Members' Services:

- Public: basic information about all teams registered by the TI (Points of contact, cryptographic keys, etc – no policies)
- Accredited (introduced) Members: in-depth operational data
- Secure chat, mailing lists
- Meetings and trainings
- **Incident Response coordination (with CERT Center)**
- Certification of teams and activities
- Technical: Public Key Infrastructure, PGP keys, Compendium

ENISA
European Cybersecurity(!) Agency

ENISA goal: **a high common level of cybersecurity in Europe Activities:**

- contributes to EU cyber policy (NIS directive)
- develops cybersecurity certification schemes,
- Prepares Europe for cyber challenges of tomorrow through:
- knowledge sharing – very useful documentation
- capacity building/trainings & awareness raising events,
- protection against cybercrime, especially in area e-commerce, e-payment, e-health;
- ENISA CSIRTs Network of Gov CSIRTs and CERT-EU: ENISA provides the secretariat and incident coordination.

Inventory of C-S-relevant International Initiatives

- EU initiatives: European Defence Fund, PESCO, ENISA CSIRT Network, EU Cyber Challenge;
- NATO initiative: Atlantic Council Staff Games;
- UN-ITU initiatives: National-CIRT support programmes;
- USA initiatives: US–ICS-CERT – ICS specific CSIRT;
- Good example of regional cooperation is APCERT;
- SIM3 – a model of cybersecurity readiness assessment;
- International games (maneuvres) Capture-the-flag, Cyber-EXE, Cyber-Fortress to train c-s Staff.

Open CSIRT Foundation (OCF)

- The OCF fulfills the role of “Head Trainer” for TRANSITS trainings organised by GEANT.
- 4gh is a new type of Security Conference – small scale, for “hardcore security experts” (~highly trusted participants).
- Organizes „Certified SIM3 Auditor” trainings.

SIM3 Model
Security Incident Management Maturity Model

- CSIRT Maturity SIM3 Model is an indication of how well a CSIRT team governs, documents, performs and measures their function;
- Used by TF-CSIRT/TI for Certification of members;
- Used by ENISA for development of Gov-CSIRTs;
- 40 Maturity Parameters, in 4 quadrants (O-Organisation, H–Human, T–Tools, P–Processes), quantified maturity levels of 0-4.

Conclusions

- Cybersecurity does not recognise borders and by its very nature needs international cooperatiion. This is very true for Caucasian region.
- CERTs/CSIRTs are essential tools to secure cybesecurity for a given domain or community.
- Cybersecurity is interesting research area and important topic for education, as the needs for experts sharply grows.
- There is plenty of international organizations and initiatives, which foster international cooperation in cybersecurity.
- ***Think about possible projects and educational programmes !***

Funded by Swedish Institute

CyberEDU project

2021-2022

Stockholm U., NCBJ, **ASOIU, BHOS**, Georgia U, GRENA, KhAI

Goals: - establish a network of cybersecurity experts

- Increase awareness, knowledge and practices in cybersecurity programmes

Activities 2021: - Explore current state of cybersecurity education

- Identify the needs of industry
- Actively participate in NATO ARW

CyberEDU

Activities 2022: - Raise awareness for the protection of national CI and ICSs

- Enhance cybersecurity education with expectations of students and industry
- Create and run an online course module, “Cybersecurity of critical infrastructures”
- Organize CERT-staff training
- Define follow-up project(s)

Funded by Swedish Institute

CyberEDU project

2021-2022

Stockholm U., NCBJ, **ASOIU, BHOS**, Georgia U, GRENA, KhAI

Message from the Coordinator, prof. Oliver Popov:

The overarching spirit of the CyberEDU project is internationalization, which advocates learning through friendly collaboration, complementary needs and competence, and different inter-cultural perspectives.

CyberEDU

Thank you for your attention!

In case of interest and concrete project ideas, you may contact:

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