Competence for the Unforeseen and Innovation & HFC møte 17. og 18. oktober 2023 " Et systemperspektiv på sikring og beredskap – A System perspective on security and emergency response

Hei – Takk for god og engasjert deltakelse i høstmøtet med tema: " *Et systemperspektiv på sikring og beredskap – A System perspective on security and emergency response ”*.

Vi sender ut denne HFC statusen sammen med et spørreskjema som du finner på slutten av denne eposten om ***" Competence for the Unforeseen and Innovation"***

De neste fysiske møtene blir vårmøtet i Oslo, hos DnV på Høvik, den 23. og 24. april og høstmøte i Halden, hos IFE, den 15. og 16. oktober. I vårmøtet er temaet "Just Culture" – «Jakten på læring trumfer jakten på syndebukker». Tema for høstmøtet er ikke bestemt, men det kan bli om AI og HCAI.

Vi var ca. 60 deltakere fra ABB AS, Aker BP, Chalmers University of Technology/HFN, Cognite AS, DNV, Equinor, IFE- Institute for Energy Technology, Kongsberg Maritime AS, Kongsberg Maritime Training, KraftCERT, Norwegian Authority, NTNU, NTNU Samfunnsforskning AS, Petroleumstilsynet, Safetec Nordic AS, Siemens Energy, SINTEF, Sjøfartsdirektoratet, University of Tulsa, Viking Norsafe Lifesaving equipment, Vysus Group, Western Norway University of Applied Sciences.

Kopi av presentasjoner og relevante papers/rapporter finnes på hjemmesiden til HFC (https://www.sintef.no/projectweb/hfc/moetereferat/), og i det følgende legger vi ved en oppsummering av noen av referansene som ble nevnt i de ulike presentasjonene.

1) Is it Safe to Deploy Unmanned Aerial Vehicle Monitoring Systems at Critical Infrastructure Assets? S. Shenoi

- Mye fortrolig informasjon som ble lagt frem – sårbarhetene er bl.a. dokumentert i Yaacoubet et al. (2020). Security analysis of drones systems: Attacks, limitations, and recommendations. Internet of Things, 11, 100218. https://doi.org/10.1016/j.iot.2020.100218

2) Human factors in cyber security: Some misconceptions and big problems. But things are changing? B.T.Hellesøy

- https://www.dsb.no/globalassets/dokumenter/egenberedskap/egenberedskap-2023/rapport---husholdningens-egenberedskap-2023_med-viken.pdf
- Zhang, et al. (2010). The security of modern password expiration: An algorithmic framework and empirical analysis. In Proceedings of the 17th ACM conference on Computer and communications security (pp. 176-186).
- Haney, J. (2023). Users are not stupid: Six cyber security pitfalls overturned. Cyber Security: A Peer-Reviewed Journal, 6(3), 230-241.
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- Dykstra, J. & Gutzwiller, R. & Payne, B. (2020). Gaps and Opportunities in Situational Awareness for Cybersecurity. Digital Threats: Research and Practice.

3) The operator's role in cybersecurity: prevention, detection, and response. E.Nystad; Følgende papers er tilgjengelige på nettet:

- Chowdhury, N., Nystad, E., Reegård, K., & Gkioulos, V. (2022). Cybersecurity training in Norwegian critical infrastructure companies.
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- Nystad, E., Katta, V., & Simensen, J. E. (2020, June). What happens in a control room during a cybersecurity attack? Preliminary observations from a pilot study. In Proceedings of the IEEE/ACM 42nd International Conference on Software Engineering Workshops (pp. 270-275).

4) Responsible AI in the development of ML-enabled systems N.Kaloudhi

- Shneiderman, Ben. "Responsible AI: bridging from ethics to practice." Communications of the ACM 64.8 (2021): 32-35.
- Lu, Q., Zhu, L., Xu, X., & Whittle, J. (2023). Responsible-AI-by-Design: A Pattern Collection for Designing Responsible AI Systems. IEEE Software.
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- Capgemini Research Institute “Why addressing ethical questions in AI will benefit organizations”, 2019.
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- Fjeld, Jessica, et al. "Principled artificial intelligence: Mapping consensus in ethical and rights-based approaches to principles for AI." Berkman Klein Center Research Publication2020-1 (2020).
- Kaloudi, Nektaria, and Jingyue Li. "The AI-based cyber threat landscape: A survey." ACM Computing Surveys (CSUR) 53.1 (2020): 1-34.
- Nektaria Kaloudi and J. Li, "AST-SafeSec: Adaptive Stress Testing for Safety and Security Co-analysis of Cyber-Physical Systems," in IEEE Transactions on Information Forensics and Security, doi: 10.1109/TIFS.2023.3309160. (https://ieeexplore.ieee.org/document/10231138)

5) Safety, Security and Digital Twins -The red line between these ecosystems. J.Munkejord

- Fra Jan: Gå gjennom dette og del det med deltakernes, så kan de bli med på den 4. industrielle revolusjon, https://www.plattform-i40.de/SiteGlobals/IP/Forms/Listen/Downloads/EN/Downloads_Formular.html?cl2Categories_Typ_name=veroeffentlichung. Det er pr i dag 187 items, de fleste av dem er veldig relevante.
- Fra HFC: Litt bakgrunn lagt inn fra HFC – AL Våge «Industry 4.0 and Asset Administration Shell (AAS)» NTNU Open https://ntnuopen.ntnu.no › bitstream › handle – og/eller Se IEC 62443 og IEC 61511

6) Digital Transformation within Energy industry value chain: Developing a cyber secured ecosystem A.Fahimuddin

- https://www.spglobal.com/commodityinsights/PlattsContent/_assets/_files/en/specialreports/oil/oil-security-sentinel.html
- https://www.birlasoft.com/articles/it-ot-convergence-in-oil-and-gas-strategies-benefits

7) The value of Human Factors in the process of developing secure systems O.Kallerdahl

- https://www.kongsberg.com/maritime/about-us/news-and-media/news-archive/2020/first-adaptive-transit-on-bastofosen-vi/
- https://www.kongsberg.com/maritime/solutions/pax/ferry/

8) Avoid Cyber task overload with use of human factors insights A.Wahlstrøm

- https://newsroom.ibm.com/2021-07-28-IBM-Report-Cost-of-a-Data-Breach-Hits-Record-High-During-Pandemic?wpisrc=nl_cybersecurity202
- CRIOP – see www.criop.sintef.no

9) A human-centred design approach for the development and conducting of maritime cyber resilience training E.Erstad

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- Lund, M. S., Hareide, O. S., & Jøsok, Ø. (2018). An attack on an integrated navigation system.- Necesse 2018, Vol 3, Issue 2, 149-163
- Longo, G., Russo, E., Armando, A., & Merlo, A. (2023). Attacking (and defending) the maritime radar system. IEEE Transactions on Information Forensics and Security.
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10) The geopolitical situation and security risk governance of the petroleum sector S.Hansen/ S.Næss

- https://prosjektbanken.forskningsradet.no/project/FORISS/344332

11) How to Attack and Defend Wind Farms S. Shenoi

- Staggs, J., Ferlemann, D., & Shenoi, S. (2017). Wind farm security: attack surface, targets, scenarios and mitigation. International Journal of Critical Infrastructure Protection, 17, 3-14.

12) Digital security during travel H.Maagerud

- **Ta kontakt med foredragsholderen ved evt. spørsmål angående denne presentasjonen. Henning Maagerud <henning.maagerud@mail.be>**

B) Request to respond to questionnaire: Competence for the Unforeseen and Innovation

My name is Glenn-Egil Torgersen, and I am a part of a group of researchers from USN (University of South-Eastern Norway) and NIFU (Nordic Institute for Studies in Innovation, Research and Education). We are working on an NFR-funded basic research project on the unforeseen and innovation. NFR (Norwegian Research Council) honored the application with top marks (7) on all assessment factors.

In this project, we have developed a validated questionnaire, which we send out to various organizations in education, research, business, and schools, including selected ministries. The topic should engage everyone who works with innovation, unforeseen, education and research. Responses are anonymous, both in terms of specific organization and person. We are looking for the nature of competencies, and general possible connections in competence structures linked to the unforeseen and innovation. The project has been registered with SIKT (the Knowledge Sector's service provider).

We are thus grateful if you can respond to the form. To access the questionnaire, click on the link below:

Norwegian:

https://nifueu.qualtrics.com/jfe/form/SV_24c4phAdVpnrfsq

English:

https://nifueu.qualtrics.com/jfe/form/SV_72RDwYF12d7b4bA

All information is provided on the questionnaire itself. It takes about 30 minutes to complete the questionnaire. You can go in and out of the form and continue later where you left off by clicking on the same link. The answers are therefore not submitted until you click "submit" at the end of the form. If you can complete the questionnaire within 2 weeks, that's great.

By responding, you are contributing to important basic research in a new field of research, for the benefit of society. The results will be published in scientific articles, it is also possible to contact us directly along the way for dialog about the status of the research and preliminary findings.

Thank you in advance! Don't hesitate to get in touch!

Best regards, Glenn-Egil Torgersen

Professor of Education, PhD in Psychology (NTNU)

Department of Educational Science, Faculty of Humanities, Sports and Educational Sciences

Appointed member: The Royal Norwegian Society of Sciences and Letters

Med vennlig hilsen,

Frøy Birte Bjørneseth/ Kongsberg & NTNU, Andreas Bye/ IFE, Jan Tore Ludvigsen/ Equinor, Nalini Suparamaniam-Kallerdahl, Georg Giskegjerde/ DNV, Stig Ole Johnsen/ SINTEF

(PS: Gi beskjed via HFC@Sintef.no om du vil bli fjernet fra denne distribusjonslista)

------ English version ----------

We will send out this HFC status together with a questionnaire that you will find at the end of this email about "Competence for the Unforeseen and Innovation"

The next physical meetings will be the spring meeting in Oslo, at DnV in Høvik, on April 23 and 24, and the autumn meeting in Halden, at IFE, on October 15th and 16th. In the spring meeting, the theme is "Just Culture" – "The pursuit of learning trumps the pursuit of scapegoats". The topic of the fall meeting has not been decided, but it could be about AI and HCAI.

We were approx. 60 participants from ABB AS, Aker BP, Chalmers University of Technology/HFN, Cognite AS, DNV, Equinor, IFE- Institute for Energy Technology, Kongsberg Maritime AS, Kongsberg Maritime Training, KraftCERT, Norwegian Authority, NTNU, NTNU Social Research AS, Petroleum Safety Authority, Safetec Nordic AS, Siemens Energy, SINTEF, Norwegian Maritime Authority,

University of Tulsa, Viking Norsafe Lifesaving equipment, Vysus Group, Western Norway University of Applied Sciences.

Copies of presentations and relevant papers/reports can be found on HFC's website (https://www.sintef.no/projectweb/hfc/moetereferat/), and in the following we enclose a summary of some of the references mentioned in the various presentations.

1) Is it Safe to Deploy Unmanned Aerial Vehicle Monitoring Systems at Critical Infrastructure Assets? S. Shenoi

- Restricted information, for som background see: Yaacoubet et al. (2020). Security analysis of drones systems: Attacks, limitations, and recommendations. Internet of Things, 11, 100218. https://doi.org/10.1016/j.iot.2020.100218

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(To be removed from this list - send Remove to HFC@Sintef.no