

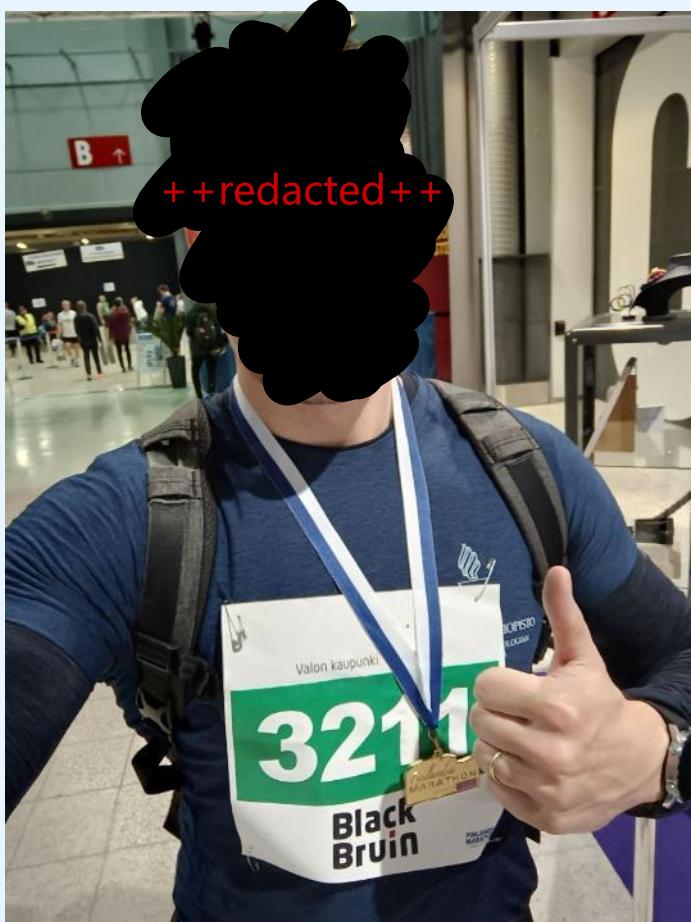


Cyberpsychology and Cybersecurity

In
Business Information Management



Juhani Merilehto



- Doctoral Researcher – DSc. (Admin.) in Social and Health Management
- MSc. Student in Cybersecurity (est. 03/2024)

- MSc. in Security and Strategic Analysis
- MSc. in Cognitive Sciences
- MSc. (Econ.) in Information Systems

- Specialist in Data and Statistic analysis at JAMK
- OSINT-Analyst (Freelancer)



Structure and content

Cyberpsychology

- Introduction
- The four streams
- Case Jeff Bezos
- Break

Cybersecurity

- Introduction
- Motivation
- Threat landscape
- What to take with you

Cyberpsychology

Field in Applied Psychology, focused on the study of the mind within the context of human-computer interaction.





Four streams of cyberpsychology

1. How people interact with others by utilizing technology

2. How human behavior is influenced by technology

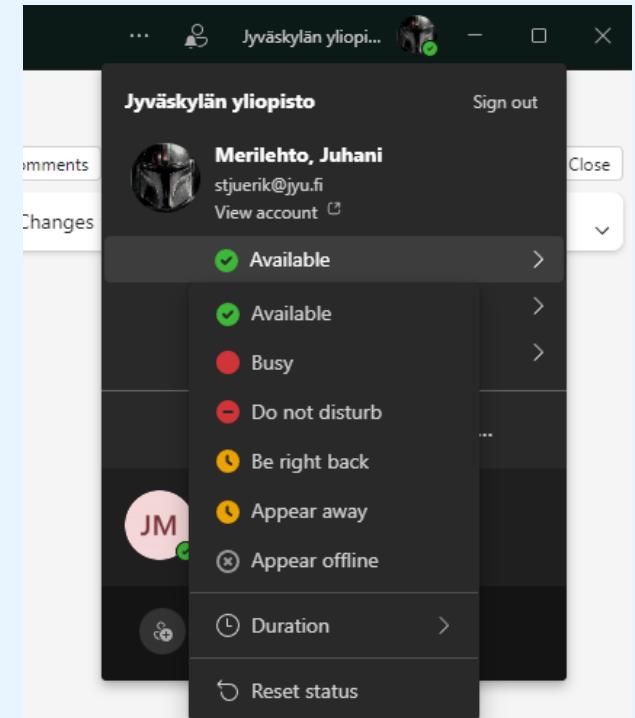
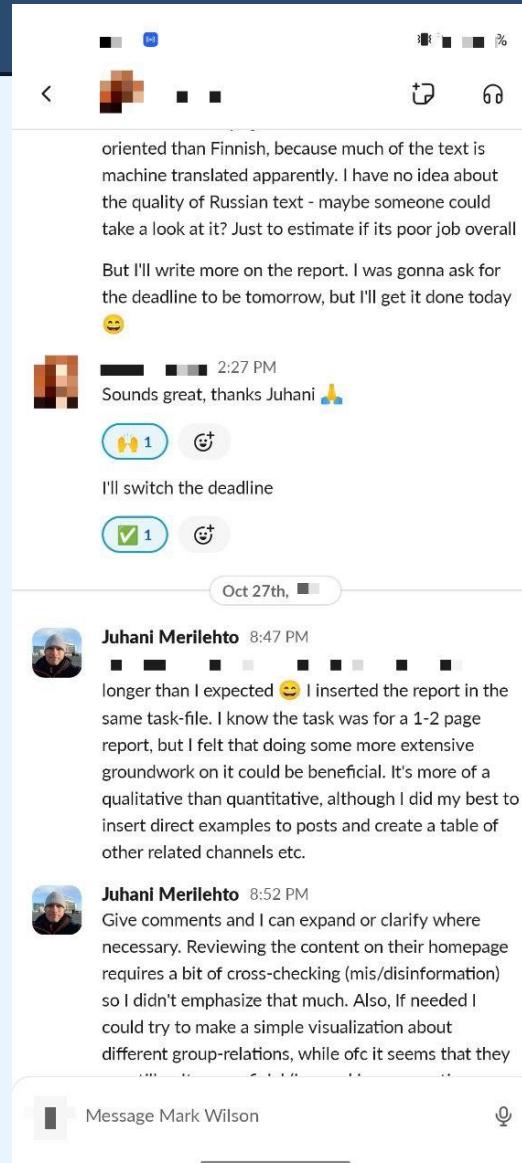
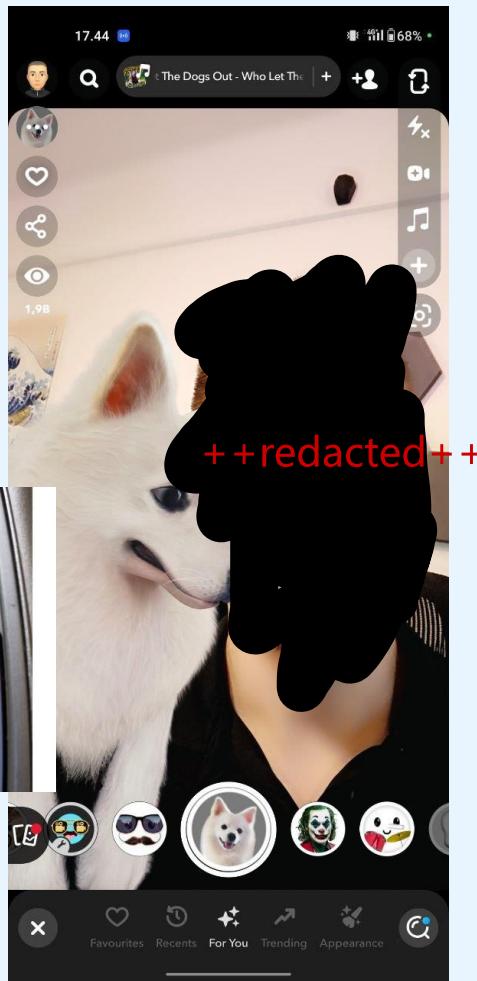
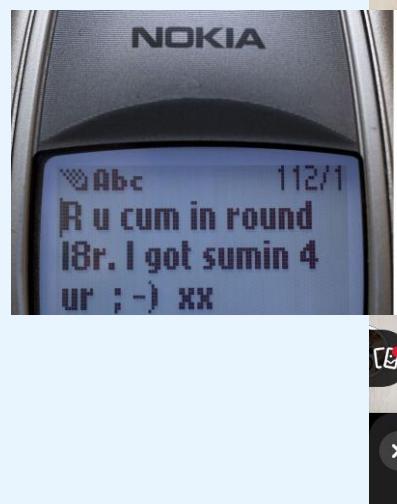
3. How human psychological states are affected by different technologies

4. How can technologies be developed to best suit human needs and desires



1. How people interact with others by utilizing technology

Produces
big data





Produces
big data

 CNBC 

TECH

How Walmart, Delta, Chevron and Starbucks are using AI to monitor employee messages

PUBLISHED FRI, FEB 9 2024 2:56 PM EST UPDATED 10 MIN AGO

 **Hayden Field**
@HAYDENFIELD

WATCH LIVE

KEY POINTS

- Aware, an AI firm specializing in analyzing employee messages, said companies including Walmart, Delta, T-Mobile, Chevron and Starbucks are using its technology.
- Aware said its data repository contains messages that represent about 20 billion individual interactions across more than 3 million employees.
- “A lot of this becomes thought crime,” Jutta Williams, co-founder of Humane Intelligence, said of AI employee surveillance technology in general. She added, “This is treating people like inventory in a way I’ve not seen.”





2. How human behavior is influenced by technology

Produces
big data

Technology influences
human behavior



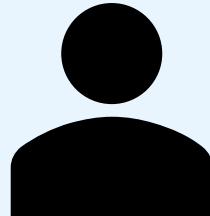
Individuals shape their
experiences with technology

The screenshot shows a LinkedIn profile page for Juhani Merilehto. At the top, there's a navigation bar with 'Articles', 'People' (which is underlined), 'Learning', and 'Jobs'. Below the bar is a dark header image featuring a network of glowing blue nodes connected by lines. The profile section starts with a circular profile picture of a person wearing a blue hoodie. The name 'Juhani Merilehto' is displayed in bold. Underneath, it says 'Doctoral Researcher | MSc. Student in Cyber Security | Organizational Cognition | Generalist | Technologist | Analyst'. It also mentions 'Jyväskylä, Central Finland, Finland' and '1K followers · 500+ connections'. There are two small circular icons showing mutual connections. At the bottom are two buttons: 'Join to view profile' and 'Message'.



2. How human behavior is influenced by technology

Should I use this platform?

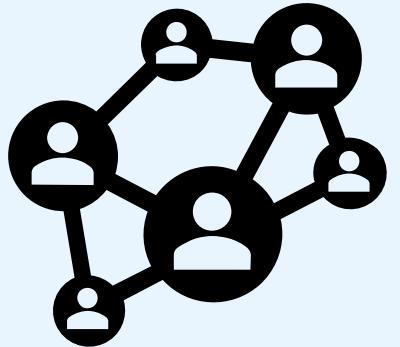


How do I identify myself?

I know my interactions
are visible / recorded

The screenshot shows a LinkedIn profile page for Juhani Merilehto. At the top, there's a navigation bar with 'LinkedIn' and icons for 'Articles', 'People' (which is underlined), 'Learning', and 'Jobs'. Below the header is a dark background featuring a network of glowing blue dots connected by lines, resembling a social graph. In the center-left is a circular profile picture of a man sitting outdoors. To the right of the pic, the name 'Juhani Merilehto' is displayed in bold black text. Underneath the name is a bio: 'Doctoral Researcher | MSc. Student in Cyber Security | Organizational Cognition | Generalist | Technologist | Analyst'. It also lists 'Jyväskylä, Central Finland, Finland' and links to 'Contact Info' and '1K followers · 500+ connections'. Further down, there's a section for mutual connections with three small profile pictures and the text 'See your mutual connections'. At the bottom are two buttons: a blue 'Join to view profile' button and a white 'Message' button with a blue arrow icon.

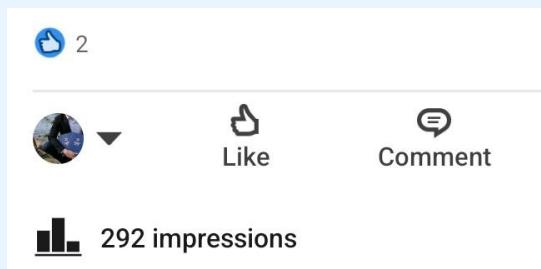
How do others see me?





3. How human psychological states are affected by different technologies

- Break up with a text-message or by calling?
- Sending an email or a Teams-message?
- Google or ask from ChatGPT?



You
I'm feeling sad today. Can you cheer my up by listing all the basic emotions?

ChatGPT
I'm sorry to hear you're feeling down today. Let's explore the basic emotions together—recognizing and understanding our emotions can often be the first step toward feeling better. The psychologist Paul Ekman identified six basic emotions that are universal across human cultures:

1. **Happiness** - A feeling of joy, contentment, and well-being. It's what we all strive to find and maintain.
2. **Sadness** - A natural emotional response to experiences of loss, disappointment, or dissatisfaction. It's a necessary emotion that allows for reflection and healing.
3. **Fear** - An emotion triggered by perceived danger or threat, which can be real or imagined. It's a fundamental survival mechanism.
4. **Disgust** - A strong feeling of aversion or disapproval, often in response to something unpleasant or offensive.
5. **Anger** - A response to perceived mistreatment, injustice, or frustration. It can motivate us to address wrongs or assert boundaries.
6. **Surprise** - A brief emotional state that results from experiencing something unexpected. It can be pleasant, unpleasant, or neutral.

Remember, it's completely normal to experience a range of emotions, and acknowledging them is a healthy part of emotional well-being. If you'd like, I can share more on how to navigate through these emotions or suggest activities that might help lift your spirits.

Share Save



4. How can technologies be developed to best suit human needs and desires

- User Experience Design
...or Life-Based Design?



Hassenzahl, M. (2013). User experience and experience design. *The encyclopedia of human-computer interaction*, 2, 1-14.

Leikas, J. (2009). *Life-based design: a holistic approach to designing human-technology interaction*. VTT Technical Research Centre of Finland.

Saariluoma, P., Cañas, J. J., & Leikas, J. (2016). Life-based design. *Designing for Life: A Human Perspective on Technology Development*, 171-206.



Case example: Jeff Bezos meetings



<https://youtu.be/L227qFemjql>



Case example: Jeff Bezos meetings



PowerPoint slideshow



6-page memo

Presentation
oriented

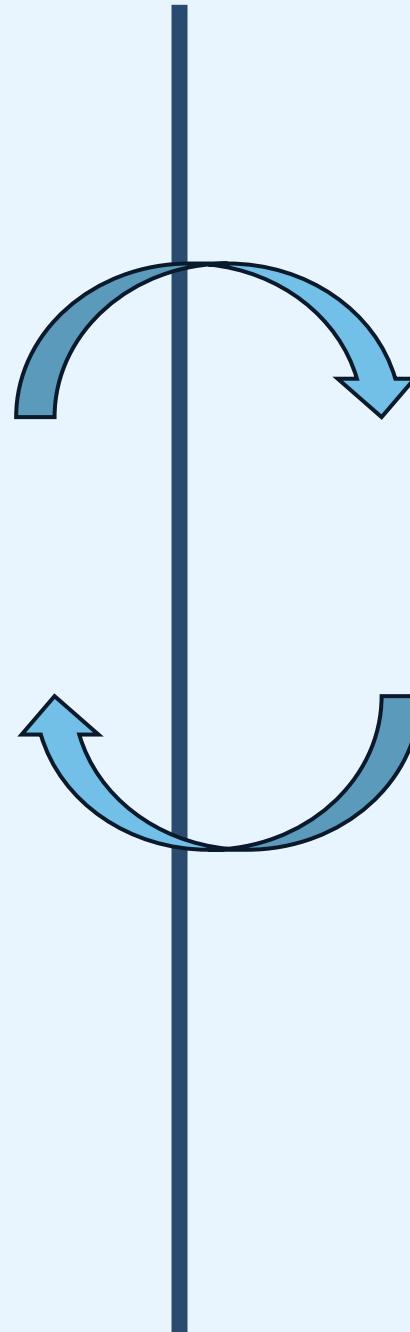
Data oriented

- Presenter + Slideshow
- Easy to sell and hide details
- Process constraint
- Enforces same information for everyone
- Uninterrupted information processing
- Emotional satisfaction (writer)



Recap & Tip

1. How people interact with others by utilizing technology
2. How human behavior is influenced by technology
3. How human psychological states are affected by different technologies
4. How can technologies be developed to best suit human needs and desires



Business Information Management;
International Business; Thesis; Essay;
Article; Own business; Work etc.



Let's have a
break!





Cybersecurity*

Cyber represents technology, humans,
and the environment they interact;
Cybersecurity is the *security* aspect of it

(Patterson, 2019)

*Evolution of Computer security;
overlaps with IT security



Why you NEED to know Cybersecurity

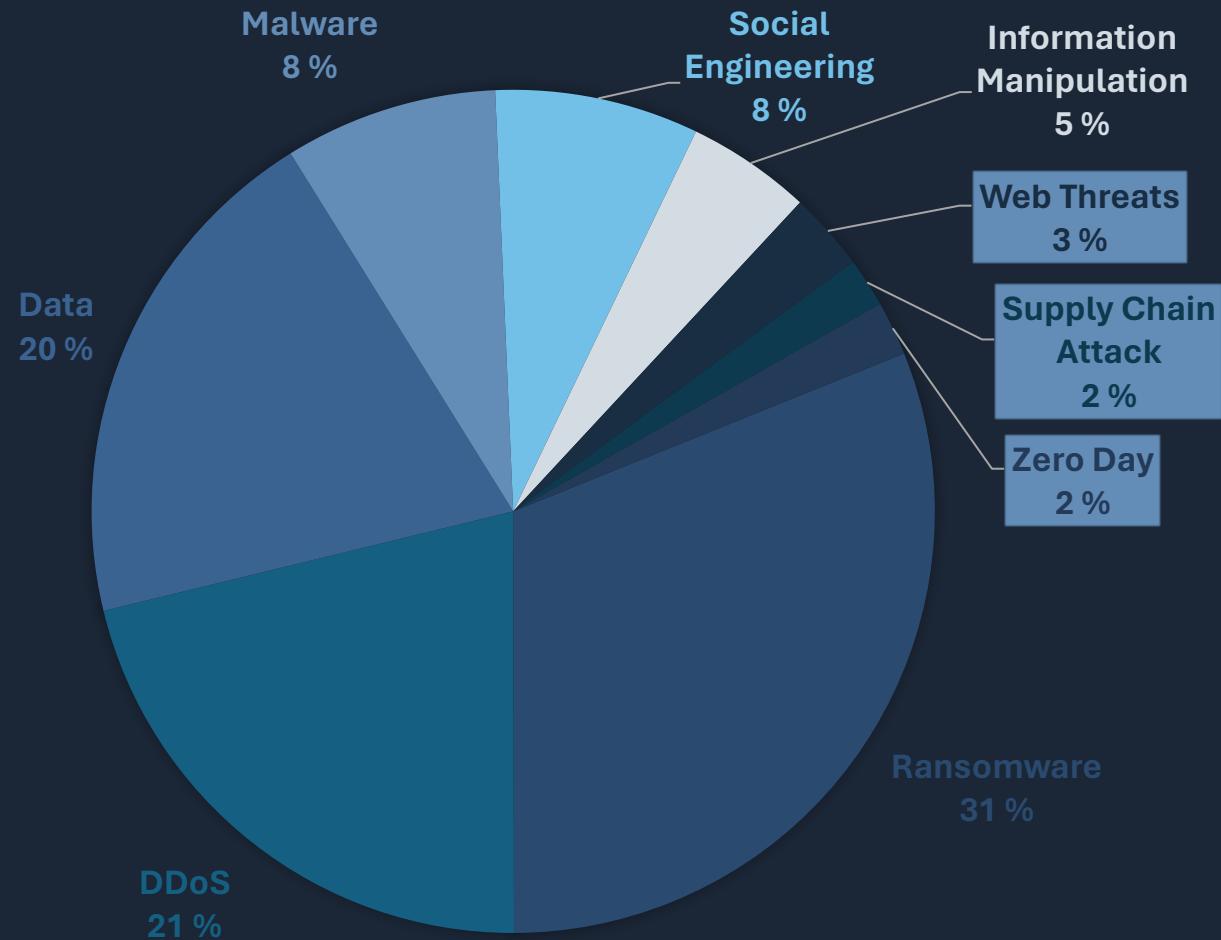
- Mission critical for any business
- Everyone is responsible – not just Cyber-professionals
- There will only be more of data, devices, and connections





Threat landscape

IBM X-Force: 41 % of all incidents had **Phishing** as initial attack vector (2022).





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Phishing – manipulation for:

- Sensitive information
- Access to systems and services
- To trigger the user to perform action that the attacker wants

Spear-phishing

- Specific, usually high-value target
- Tailored phishing
- Conducted with gathered data about the target

Business Email Compromise (BEC) cost **\$2,8 Billion** to US Businesses in 2023



Trends to watch – Generative AI

- Social engineering increased **135 %** the month following the adoption of ChatGPT*
- **Deepfakes** are now near-perfect – wide adoption is expected this year (2024)



*Darktrace, 2023

Deepfakes are now near-perfect – wide adoption is expected this year (2024)

What was the Cyber Kill Chain?



<https://globalnews.ca/news/10273167/deepfake-scam-cfo-coworkers-video-call-hong-kong-ai/>

Company out \$35M after scammers stage video call with deepfake CFO, coworkers



By Kathryn Mannie • Global News

Posted February 5, 2024 3:40 pm

3 min read



Photo illustration of an AI-generated face being used in a video call.
Tero Vesalainen/Getty Images



-A A+

A multinational firm in Hong Kong is out 200 million Hong Kong dollars (around \$34.5 million Canadian) after a financial worker at the company was targeted by scammers using artificial intelligence, culminating in a phony video conference call with numerous **deepfake** colleagues.

Police discussed details of the incident, without naming the company or worker involved, during a press conference in order to warn the public about the novel scam.



What was the Cyber Kill Chain?



1. Reconnaissance

Identifying key personnel, gathered public videos and audio.



2. Weaponization

Using material to create deepfake videos to mimic co-workers.



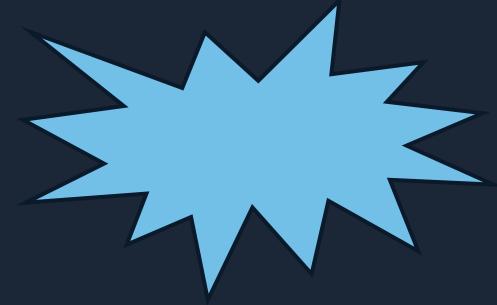
3. Delivery

First vector:
Phishing email!
Second vector:
video conference.



4. Exploitation

Deepfakes used to convince target:
Exploiting trust



5. Actions on Objectives

Money is transferred to attacker's accounts



Zero Trust Model

Verify explicitly

- Multi-Factor Authentication

- Password manager

- Minimize ways to login

Use least privilege access

- Just-in-Time access

- Service-Data separation

- Role-based access

Assume breach

- Data always encrypted

- Inside network monitoring

- Verify actions

How does this work against deepfake social engineering?



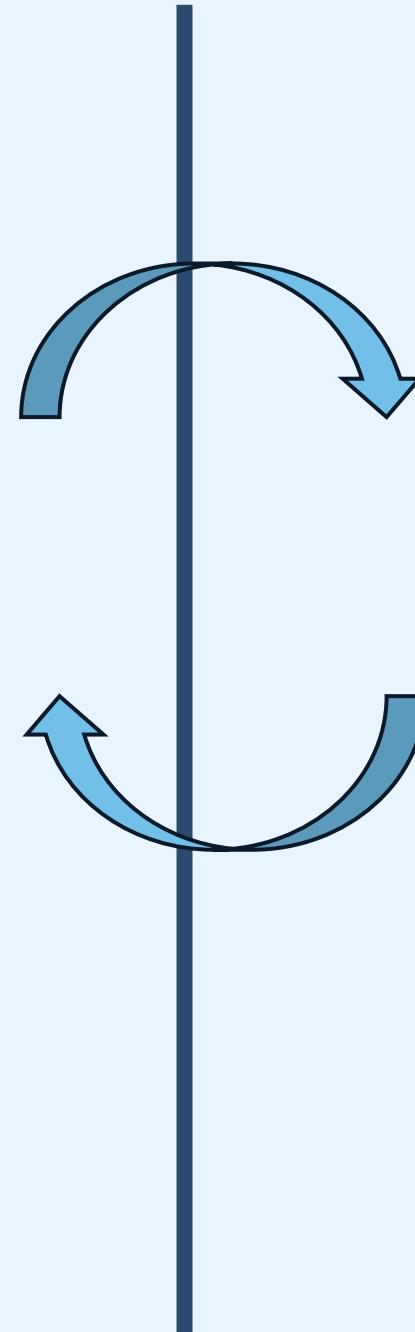
Recap & Tip

Number 1. threat is Phishing

Trend: GPT / Deepfake -> Social Engineering

Zero Trust Model

Global lack of Cyber-skills



Business Information Management;
International Business; Thesis; Essay;
Article; Own business; Work etc.



Thank you!



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