



# Cyberpsychology and Cybersecurity

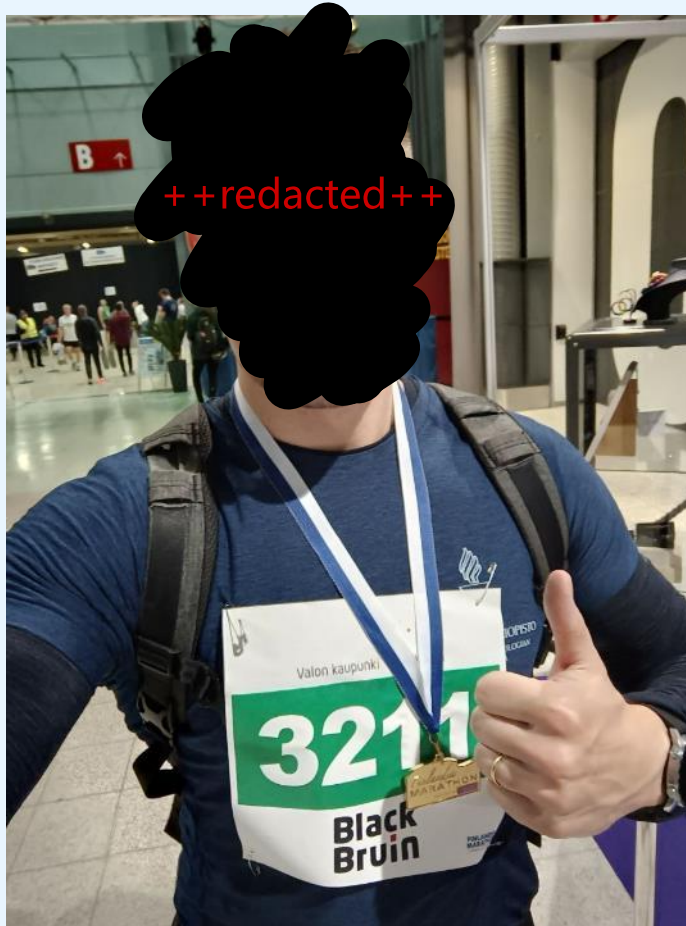
In  
Business Information Management

12/02/2024  
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# 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

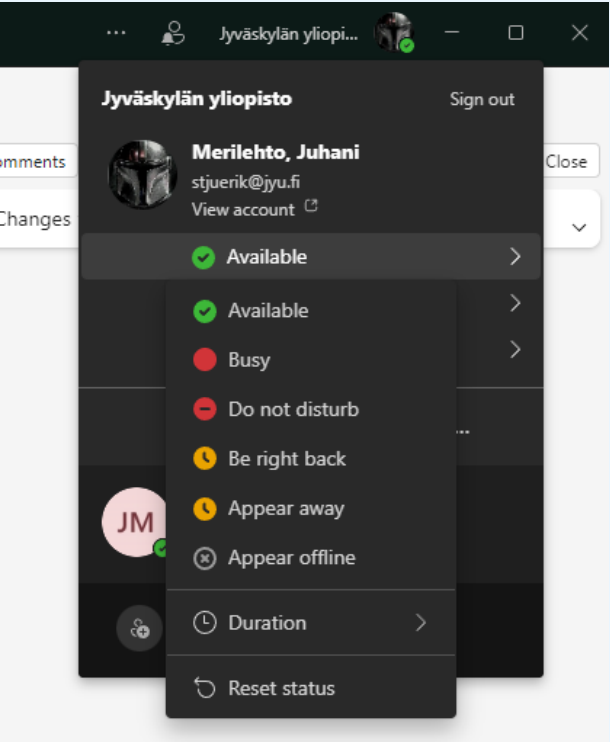
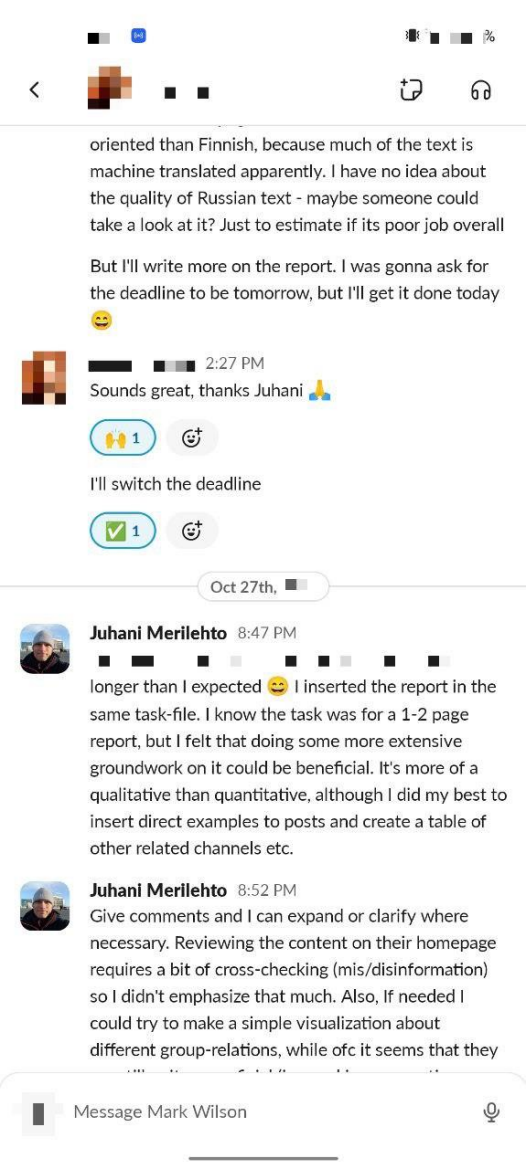
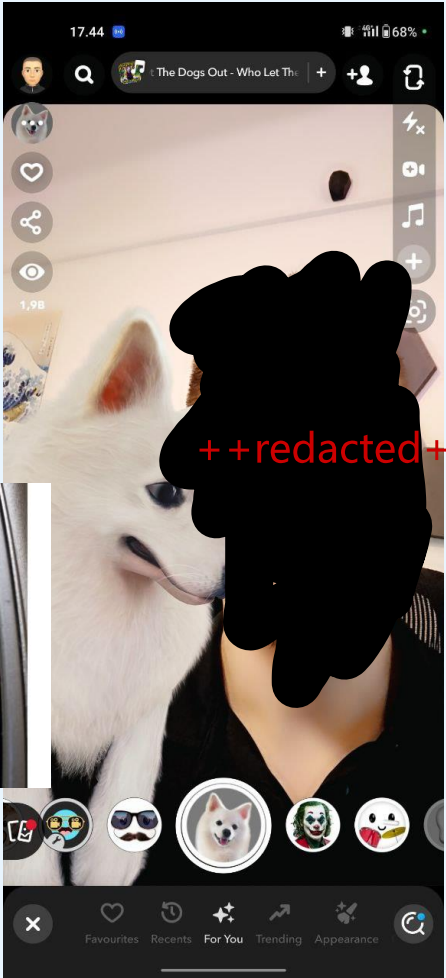
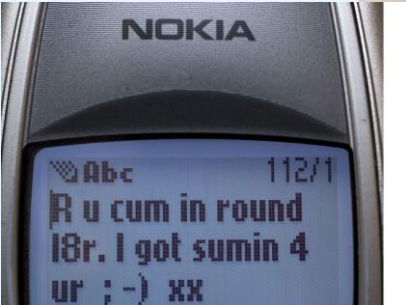
3. How human psychological states are affected by different technologies

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



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.”





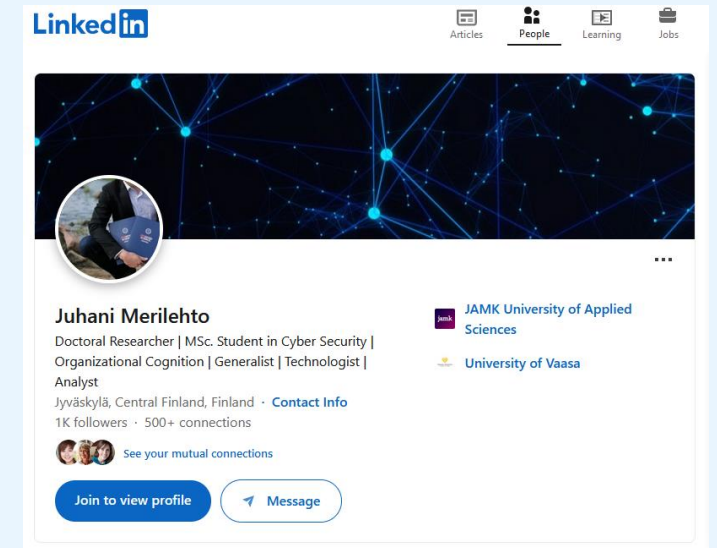
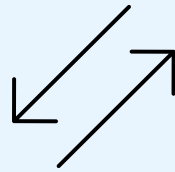
## 2. How human behavior is influenced by technology

Produces  
big data

Technology influences  
human behavior



Individuals shape their  
experiences with technology



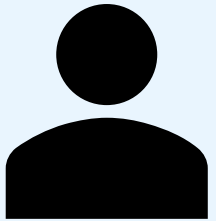




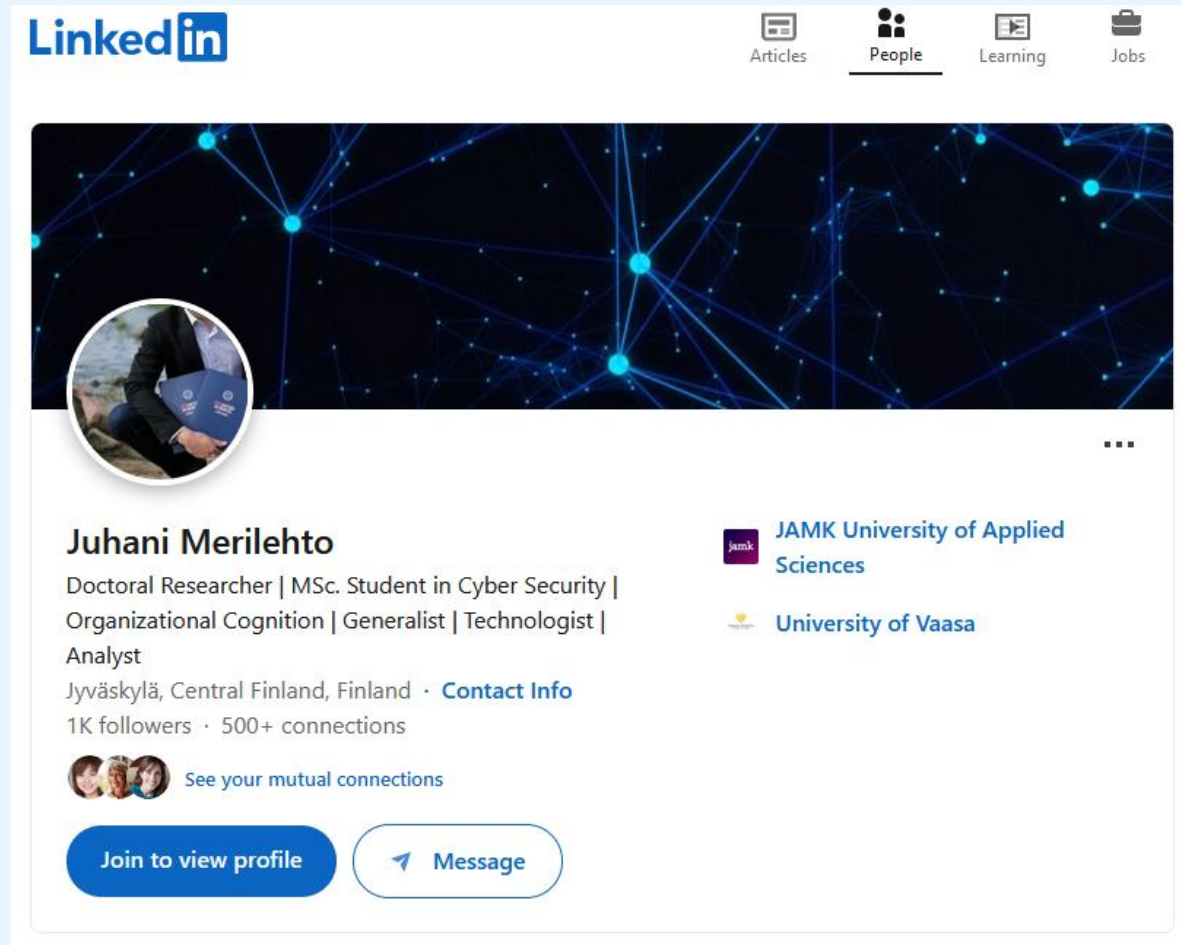
## 2. How human behavior is influenced by technology

Should I use this platform?

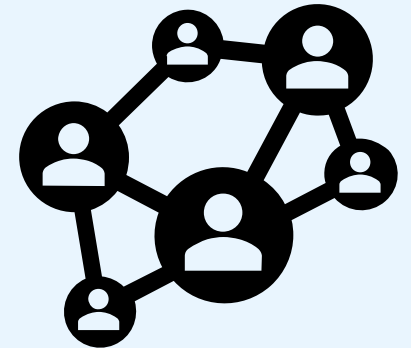
How do I identify myself?



*I know* my interactions  
are visible / recorded



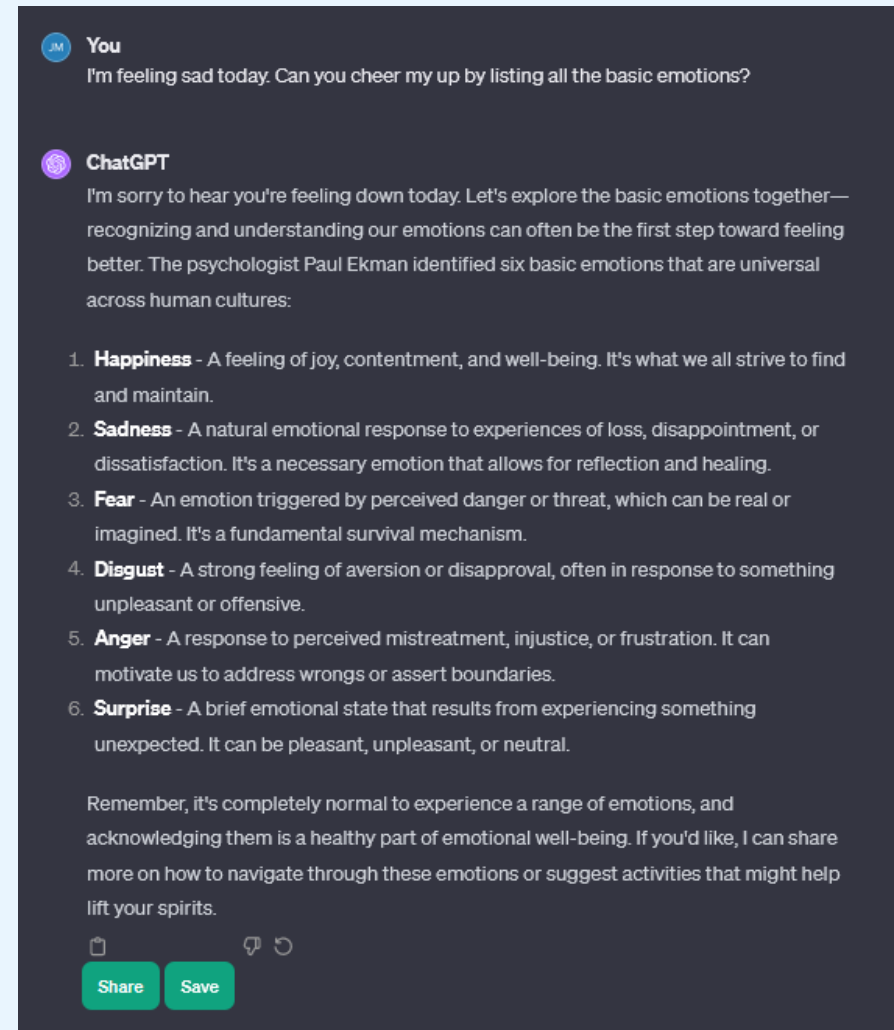
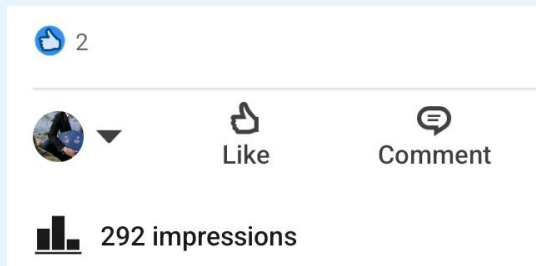
How do others see me?





### 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?





## 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: Jezz Bezos meetings



PowerPoint slideshow

Presentation  
oriented

- Presenter + Slideshow
- Easy to sell and hide details
- Process constraint



6-page memo

Data oriented

- Enforces same information for everyone
- Uninterrupted information processing
- Emotional satisfaction (writer)



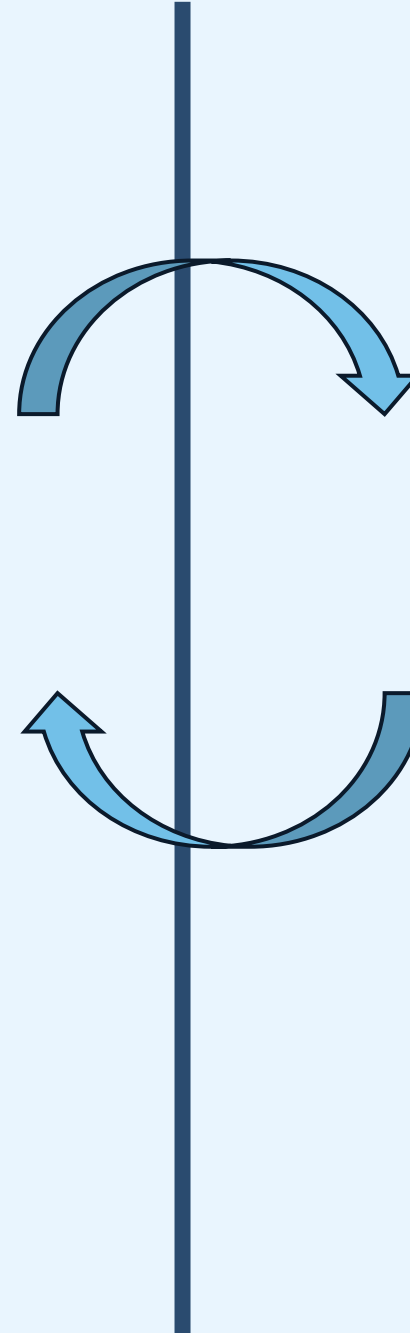
# Recap & Tip

1. How people interact with others by utilizing technology

2. How human behavior is influenced by technology

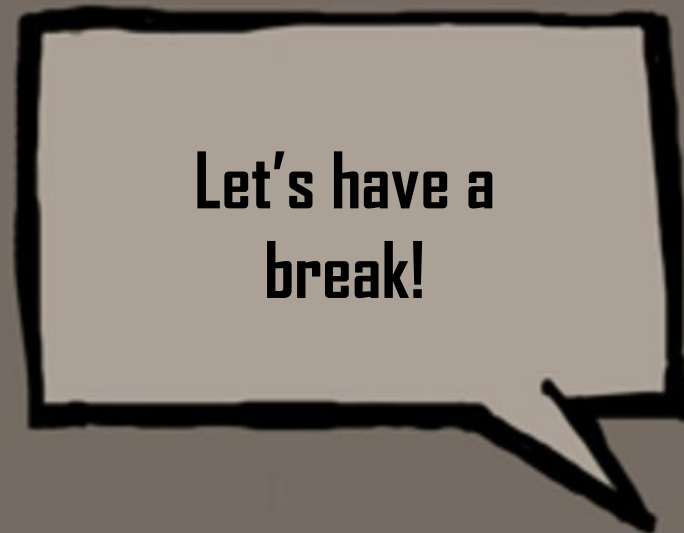
3. How human psychological states are affected by different technologies

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

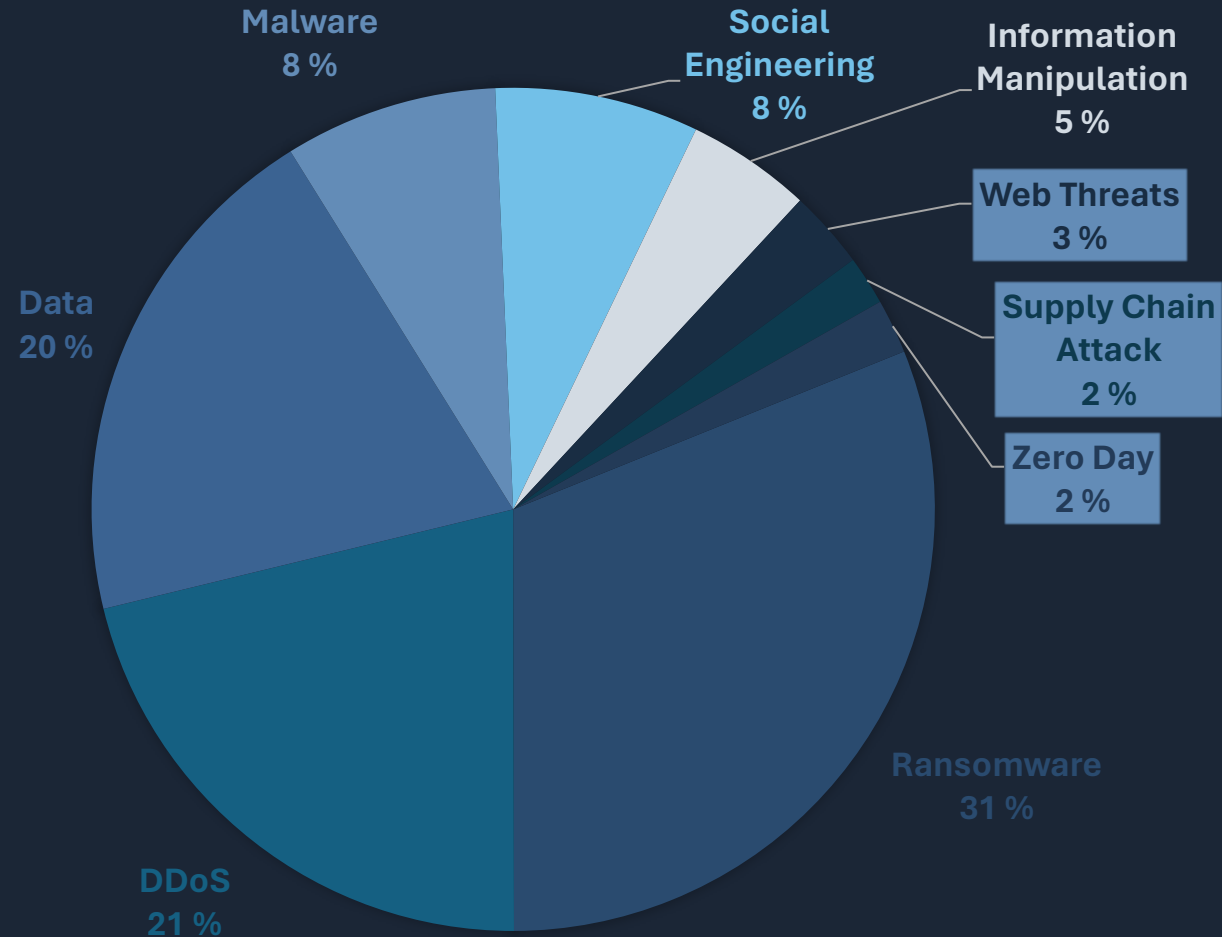






# Threat landscape

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.



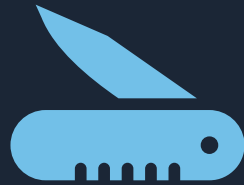


# What was the Cyber Kill Chain?



## 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?



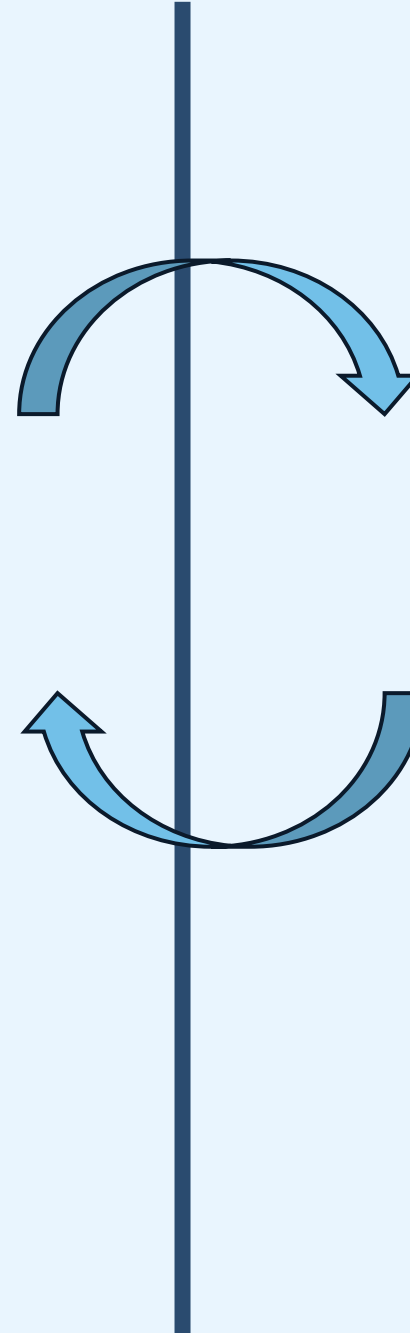
# Recap & Tip

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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