Ethical Issues and Concerns in Digital Innovation
ISM-E2002

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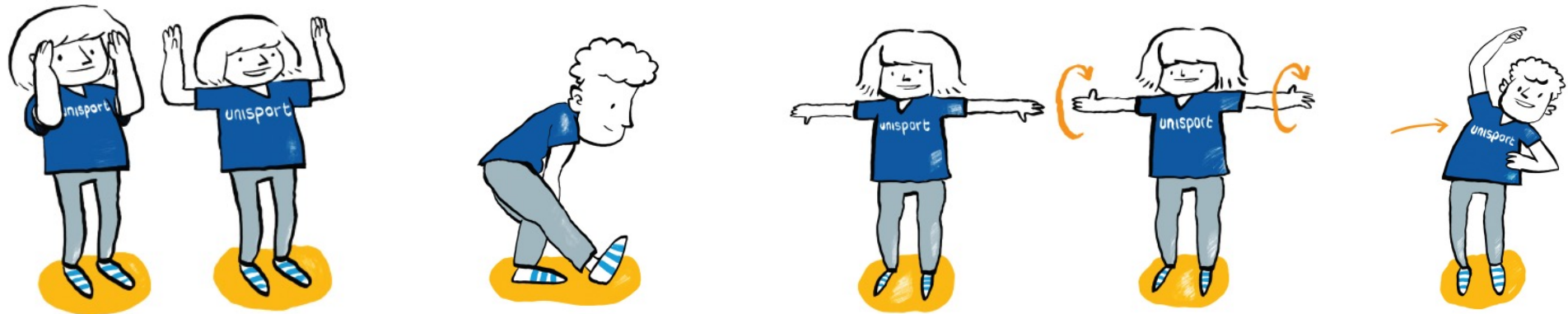
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Feel free to move during the lecture

Taking breaks, for example with break exercise or just moving around, improves the ability to focus, which improves the ability to study and learn.

- Students wish more breaks and physical activity during lectures!

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Session 4 – Ethics and the Use of Digital Services

Documentary: When Big Tech Targets Healthcare (2022)

- What kind of ethical dilemmas and issues can be found from the documentary?

- What kinds of solutions does the document propose or hints at?

- What about the companies in question, how might they approach the ethical issues discussed in the documentary?

- How would you solve the identified ethical issues?

Digital Platforms and Use of Personal Data

In recent years, there has been much discussion and concern about respect for human values in the process of digitalization [1], especially large-scale analysis and use of personal data [2].

- Respecting human values requires service providers to collect & handle personal data according to ethically informed regulations and principles (e.g. GDPR).

- In surveillance capitalism [3] digital service platforms (e.g. Google, Facebook, Apple) use and exploit users' personal data as raw material and capital for generating substantial amount of revenue [4].

Sur-veil-lance Cap-i-tal-ism, n.

1. A new economic order that claims human experience as free raw material for hidden commercial practices of extraction, prediction, and sales; 2. A parasitic economic logic in which the production of goods and services is subordinated to a new global architecture of behavioral modification; 3. A rogue mutation of capitalism marked by concentrations of wealth, knowledge, and power unprecedented in human history; 4. The foundational framework of a surveillance economy; 5. As significant a threat to human nature in the twenty-first century as industrial capitalism was to the natural world in the nineteenth and twentieth; 6. The origin of a new instrumentarian power that asserts dominance over society and presents startling challenges to market democracy; 7. A movement that aims to impose a new collective order based on total certainty; 8. An expropriation of critical human rights that is best understood as a coup from above: an overthrow of the people's sovereignty.

Surveillance Capitalism definition (Zuboff, 2019)

1-Leidner & Tona, 2021
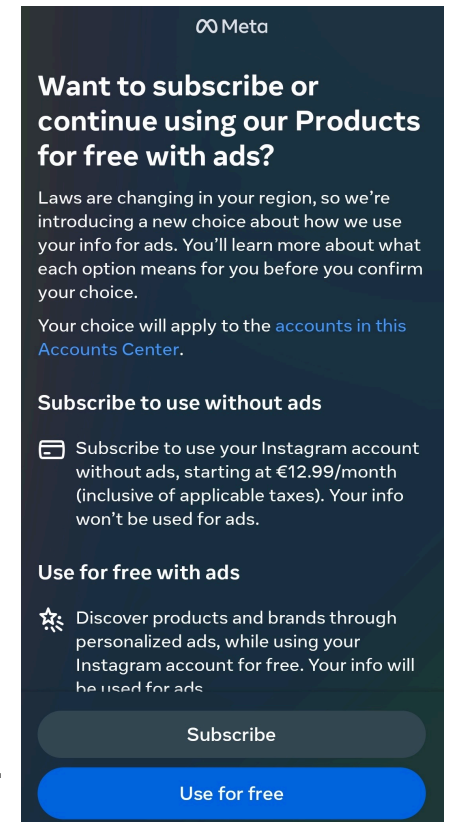2-van Est, 2019
3-Zuboff, 2019
4-Mason, 2021

Surveillance Capitalism as a Business Model

Digital service platforms often follow five steps to monetise users' personal data, without compensating them [1,2].

1. Offer a "free" online service to users
2. Collect personal data to personalise and optimise the service
3. Profile users based on personal traits, habits, preferences, etc.
4. Provide users with personalized services, content, and ads
5. Sell users data to third parties (e.g. marketers)

To make this process ethical, informed consent is required.

- To give informed consent, users should know "the purposes, procedures, risks, and benefits" associated with the use of their data. However, many companies collect data without knowing the potential uses of data in the future [1].

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1-Mason, 2021
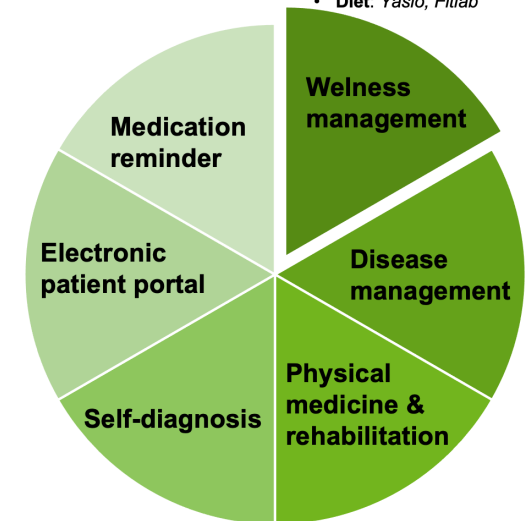2-Zuboff, 2019

Example: Preventive Health Apps

Smart solutions are transforming the healthcare industry, as they enable patients to be treated at scale in a personalized manner [1]

- Mobile health (m-health) apps use AI to process users' vitals and health records, to provide personalized recommendations empowering users to engage in their healthcare & well-being

For optimal and highly personalized services, m-health apps require self-disclosure of sensitive personal information by users [1]

- Privacy concerns increase as the level of personalization increases; many m-health apps (e.g. Flo, a femtech app with over 100 million users) have violated users' privacy [2].

- Often there is a paradox between people's privacy concerns and their interest in personalized services [3].

- **Femtech:** *Flo, Clue*
- **Fitness & sleep:** *Oura, Apple watch*
- **Mental health:** *Woebot, Headspace*
- **Diet:** *Yasio, Fitlab*

Welness management

Disease management

Physical medicine & rehabilitation

Self-diagnosis

Electronic patient portal

Medication reminder

1- Klossner et al., 2023
2- Gupta & Singer, 2021
3- Liu & Tao, 2022

Reflection & Discussion

Do you use any m-health apps?

How much personal & health information do you share with the service?

Do you have any privacy concerns about using the service?
- The app will collect too much personal information from me
- The app will use my personal information for other purposes without my authorization
- The app will share my personal information with other entities without my authorization

If you have any privacy concerns, why do you use the app?

Are there any factors that might affect your decision or reduce your privacy concerns?

Persuasive Systems

The application of machine learning techniques and smart technologies have transformed the way people behave and make decisions in digital societies [1].

- Persuasion is a specific way of outcome-oriented interaction and communication that intends to influence human attitude, decisions, and behaviour.

Persuasive systems use different mechanisms (e.g. gamification, gamblification, nudging) to shape, change, or reinforce users' attitudes, opinions, and behaviour to achieve certain desirable outcomes [1,2].

- Despite their benefits, unethical use of persuasive systems can lead to negative outcomes for users (e.g. financial loss, political manipulation, unhealthy purchase and consumption habits).

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1-Benner et al., 2021
2- Oinas-Kukkonen & Harjumaa, 2009
3- Fogg, 2003

Digital Nudging

Nudging is an overt and predictable behaviour change mechanism that helps users achieve their goals while preserving their autonomy and freedom of choice [1,2].

- Nudging must not exclude any possible choice or use economic incentives to extrinsically change user choices and decisions.

Digital nudging has been criticised for being manipulative, undermining users' freedom of choice, and taking advantage of human's predictable irrational reactions [1].

- Nudging often contains some prejudice towards certain choices (e.g. accepting cookies, sharing personal information) in favour of a third party, not the users.
- Cognitive bias makes users susceptible to unreflective thinking and judgments.
- The effectiveness of subconscious nudges motivates non-transparent implementation of nudging (e.g. Dark Pattern).

Five archetypes of digital dark nudging strategies [3]	
Pressure	Users are pressured to (not) take a certain action through nagging or confirmshaming
Operational constraints	Users actually have no decision-making option (e.g. forced enrollment, forced continuity)
Obstruction	Users are dissuaded from certain actions by placing obstacles in their way (e.g. preselection, click fatigue)
Sneaking	Imposing additional purchases of goods or services without initially noticing (e.g. hidden subscriptions)
Misleading	Using graphic design to divert attention from certain information (e.g. trick questions, misdirection)

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1-Meske & Amojo, 2020
2-Benner at al., 2021
3- Hornuf & Mangold, 2022

Gamification and gamblification

Gamification and gamblification aim at providing motivational and joyful experiences to users of information systems [1].

- Unlike nudging, gamification and gamblification allow the restriction of options, change in incentives and even the application of strict punishment.

Gamification and gamblification rely on competition, rivalry, and incentivizing certain behaviour, thus their use in certain contexts raises ethical concerns [1].

- Gamblification incentivizes harmful behaviour (e.g. overspending) that have caused considerable damage to computer game players [2].
- Gamification in enterprise context make employees, especially those who do not have a competitive personality or are not very competent at their job, feel pressured and exploited [3].

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1- Benner at al., 2021
2- Brown & Osman, 2020
3- Humlung & Haddara, 2019

Ethical Use of Persuasive Systems

To address ethical concerns about persuasive systems, while leveraging their benefits, firms must:

- Inform users about potential negative outcomes of persuasive systems and enable opt-in
- Respect freedom of choice and user autonomy
- Balance transparent persuasion with outcome-orientation

CEP	Description	Source
Consciousness of intent	PSD should be designed with ethical intent in mind. As long as no malicious intent is present, PSD may be applied	Pilaj (2017)
Extent of ethics and PSD implementation	Designers should consider the extent ethical and persuasive components to find a balance that ensures autonomy, transparency and outcome	Pilaj (2017) Sunstein (2016)
Opt-in design, anonymization	As PSD may include competitive elements (i.e., gamification) this may demotivate non-competitive users, therefore and opt-in design is recommended to not force the user in an ethically undesirable situation	Humlung and Haddara (2019), Renaud and Zimmermann (2018)
Ethical outcomes	PSD must keep the users desired outcomes in mind when persuading the user towards a specific (third party) outcome (e.g., sustainability, politics)	Hassan and Hamari (2020), Renaud and Zimmermann (2018), Sunstein (2016)
Fairness and Exploitation	PSD must not abuse its persuasive effects to exploit users (e.g., financially or emotionally), fairness should be ensured	Kim and Werbach (2016), Winkel et al. (2015)
Negative morals	Because of the characteristics of PSD a badly designed implementation can induce moral decay (e.g., fostering a gambling culture in forex trading)	Kim and Werbach (2016), Lopez-Gonzalez and Griffiths (2018a), Macey and Hamari (2020)
Asymmetrical power dynamics	Designers of persuasive IS must be conscious of their power of influencing the users decision-making process and the implicit paternalism	Hassan and Hamari (2020); Winkel et al. (2015)

Ethical considerations for persuasive system design (Benner et al., 2021)

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1-Benner et al., 2021

Supply Chain Ethics

Public criticism and reputational risks of a firm's unethical practices and behaviours not only affects the firm, but also its partners (i.e. suppliers and customers).

- Negative supply-chain brand damages make it challenging for a firm to expand its customer base, build sustainable supply-chain relationships, and attract investments from socially aware investors.

Ethical concerns and responsibilities are not limited to a firm's digital innovation activities and outcomes; they defuse through digital innovation networks and supply chains.

Firms can be subject to public pressure and "guilty by association" if they build on or contribute to unethical services and partners.

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1- Mason, 2021
2- Zuboff (2019)

Which of the discussed concerns are relevant in the Cambridge Analytica case?

"The data [on people] was collected through an app called 'This Is Your Digital Life', developed by data scientist Aleksandr Kog an and his company Global Science Research in 2013. The app consisted of a series of questions to build psychological profiles on users, and collected the personal data of the users' Facebook friends via Facebook's Open Graph platform. The app harvested the data of up to 87 million Facebook profiles"

"Donald Trump's 2016 presidential campaign used the harvested data to build psychographic profiles, determining users' personality traits based on their Facebook activity. The campaign team used this information as a micro-targeting technique, displaying customized messages about Trump to different US voters on various digital platforms. Ads were segmented into different categories, mainly based on whether individuals were Trump supporters or potential swing votes. As described by Cambridge Analytica's CEO, the key was to identify those who might be enticed to vote for their client or be discouraged to vote for their opponent. Supporters of Trump received triumphant visuals of him, as well as information regarding polling stations. Swing voters were instead often shown images of Trump's more notable supporters and negative graphics or ideas about his opponent, Hillary Clinton."

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Responsible Digital Innovation

Responsible digital innovation focuses on the social well-being and the societal impact of innovation activities and outcomes [1,2].

- Technology and economy are the means for steering innovation activities and outcomes towards society's desired direction.

Innovation actors must develop and implement human-centred and environmentally-friendly digital services that achieve three interrelated sets of values:

- Delightful & Trustworthy
- Dependable & Inclusive
- Open & Safe

Laws, market, and norms create operating boundaries for digital innovations in a context.

Responsible Innovation Framework @ Alka Roy Licensed under CC BY-SA 4.0.

1-vanEst, 2019
2-Roy, 2021
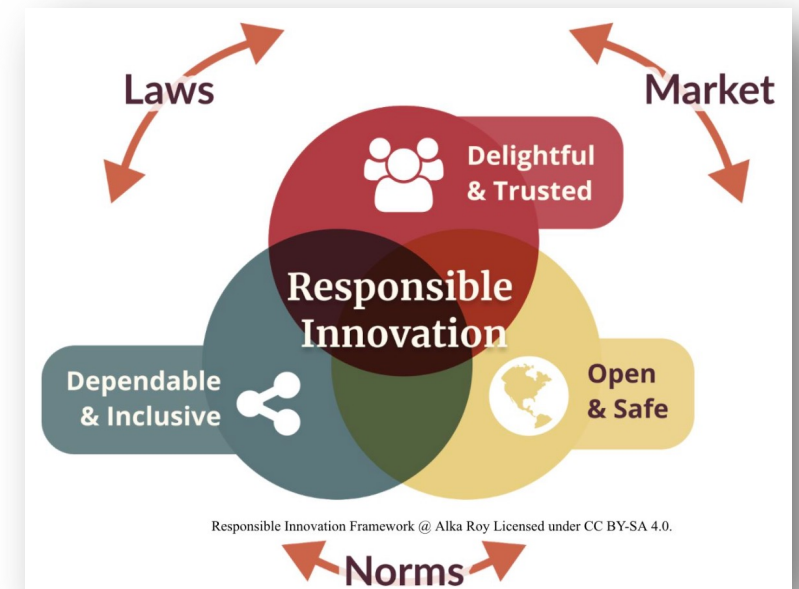
Reflection & Discussion

What do you think about the Responsible Digital Innovation Framework?

Is there something missing from the framework?

How would you improve the framework?

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