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ON THE DARK AND UNEXPECTED SIDES OF AI FOR ORGANIZATIONS AND ORGANIZING

Beyond the Hype: Künstliche Intelligenz in Wissenschaft und Praxis VHB-Arbeitstagung Künstliche Intelligenz | 12. November 2020

Agenda for today

1.	Why should we discuss AI (and its dark sides)?	
2.	How is AI used by organizations and what are the dark sides?	
3.	Iowards a governance perspective of Al	
4.	Future research opportunities	
5.	Discussion / Q&A	

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Al: An inevitable phenomenon?!

Why should we discuss AI (and its dark sides)?

BUSINESS

Artificial intelligence gets a seat in the boardroom

Hong Kong venture capitalist sees AI running Asian companies within 5 years

TECH + ARTIFICIAL INTELLIGENCE

An AI Bot Named Einstein Critiques Salesforce Execs Every Week

World's largest hedge fund to replace

managers with artificial intelligence

Bridgewater Associates has a team of engineers working on a project to automate decision-making to save time and eliminate human emotional volatility

- A venture capitalist from Hong Kong appointed in 2014 an AI (called "VITAL") to its corporate board (*Burridge*, 2017).
- VITAL was intended to support decision-making using 50 parameters i.a. financial data and clinical studies to predict the performance of investments (*Burridge*, 2017).
 - The announcement was called a 'publicity stunt' due the immature state of the technology (BBC, 2014). VITAL is no longer in use nowadays (Kahn, 2019).
- An Al occupies a seat at the senior staff meeting at 'Salesforce'. The Al called 'Einstein' evaluates and predicts the performance of the top 40 executives as well as identifies problems (*Meyer, 2018; Reid, 2018*).
- (3) The hedge fund 'Bridgewater' replaces managers with AI to facilitate and improve investment decision making (Solon, 2016).

(2)

⁽¹⁾ https://asia.nikkei.com/Business/Artificial-intelligence-gets-a-seat-in-the-boardroom (VITAL = Validating Investment Tool for Advancing Life Sciences)

⁽²⁾ https://fortune.com/2018/01/25/salesforce-benioff-einstein-davos-ai/

⁽³⁾ https://www.theguardian.com/technology/2016/dec/22/bridgewater-associates-ai-artificial-intelligence-management

Al: An inevitable phenomenon?!

Why should we discuss AI (and its dark sides)?



KÜNSTLICHE INTELLIGENZ

EU-Parlament will Überregulierung von Kl verhindern

Brüssel arbeitet an einem umfassendem Regelwerk für die KI. Europaabgeordnete fordern mehr Tempo, Geld und Pragmatismus im Technologie-Wettbewerb mit den USA und China.

- Since 2018, Germany has developed a national AI strategy, and installed subsequently and installed a commission of enquiry (Enquete commission) to comment on the strategy.
- German strategy is embedded in European attempts to develop a regulatory basis for AI use in Europe, to keep up in global competition.

Der Mittelstand darf sich nicht abhängen lassen

Der Mittelstand ist das wirtschaftliche Rückgrat Deutschlands. Umso wichtiger ist es, dass sich mittelständische Unternehmen innovativ und anpassungsfähig zeigen. Besonders im Bereich der Künstlichen Intelligenz (KI) kommt einiges auf uns zu. Denn die Potentiale von KI sind enorm und schon lange keine Zukunftsmusik mehr. Ein Blick zu Konzernen zeigt klar, beim Mittelstand herrscht großer Aufholbedarf.

Studie

(3)

(2)

KI wird in Unternehmen viel seltener genutzt als gedacht

🕑 10. Oktober 2020

https://www.ki-strategie-deutschland.de/home.html

- (2) https://www.handelsblatt.com/politik/international/kuenstliche-intelligenz-eu-parlament-will-ueberregulierung-von-ki-verhindem/26281962.html
- (3) <u>https://www.pt-magazin.de/de/wirtschaft/unternehmen/der-mittelstand-darf-sich-nicht-abh%C3%A4ngen-lassen_kglyeh7x.html?s=QVNuDL8NcqZkba6pz</u>
- (4) https://www.it-daily.net/shortnews/25693-ki-wird-in-unternehmen-viel-seltener-genutzt-als-gedacht

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(4)



Al enables firms and industries to create new markets and improve efficiency

How is AI used by private firms and what are the dark sides?

Fields of AI application





- Al can improve efficiency and effectiveness across industries (e.g., Cockburn et al., 2019; Brynjolfsson/McAfee, 2014).
- Al algorithms facilitates the creation of new and better business models and develop new markets (e.g., Adner et al., 2019; Schildt, 2017; Cramer/Krueger, 2016).
- By automatizing the hiring process AI systems can support HR departments (e.g. Upadhyay/Khandelwal, 2018).
- Evaluating and deciding on credit lending of consumers are conducted by algorithms (e.g., Bartlett et al., 2019).
- Al aids and enables to personalize marketing at an exponentiated scale (e.g., Kumar et al., 2019; Wirth, 2018)



• Content can be regulated by blocking and filtering speech, videos and photos with AI (e.g. hate speech, misinformation) (e.g., Gillespie, 2018; Suzor, 2019).



Al improves corporate efficiency, often at the expense of employees and customers

How is AI used by firms and what are the dark sides?

Dark and unexpected sides of this development



- Al shape markets and social classes, e.g. by determining credit scores and customer target groups reconfiguring power relations to the detriment of poor and 'underscored' (e.g., Fourcade/Healy, 2017; Zarsky, 2014).
- Al used by private firms influence costumer's/citizen's attitudes and decisions for economic or political purposes (e.g., Lanier, 2018; O'Neil, 2016)



- Al autonomously assigns jobs and revenues to workers, but some workers are favored over others, creating unfairness among workers (Sühr et al., 2019).
- Uber App operates by dehumanizing and distancing techniques of control, making collective resistance against worker exploitation very difficult (Walker et al., forthcoming)



- Algorithmic management leads to extra work: Aiming to 'pacify' the algorithm leads to workers engaging in additional tasks aimed at safeguarding their relationship with the algorithm and their clients (Bucher et al. forthcoming)
- Firms and their employees can become unexpectedly the objects or victims of digitalization if digitalization is tied to utopian and unrealistic expectations. (Hensman, forthcoming)



Public organizations can benefit from the same AI opportunities as private firms

How is AI used by public organizations and what are the dark sides?

Fields of AI application



- Governments use AI to automate state service delivery and administrative decision-making, consequently increasing efficiency and efficacy (OECD, 2015).
- Al can be used to allocate social benefits, tackle tax avoidance, control borders and manage migration (*Katzenbach/Ulbricht, 2019*).
 - Al and digital technologies can improve the discourse between citizens and governments by "hearing more voices" (*Katzenbach/Ulbricht, 2019*).
- Al supports in predicting, curbing, and managing natural disasters (Kim et al., 2014)
- Police authorities use AI to assess crime risk and prevent crimes by analyzing and predicting the risk of individuals or geographic areas ('Predictive policing') (Katzenbach/Ulbricht, 2019).



- Al supports the government in Flint, Michigan to detect hazardous lead pipes (Abernethy et al., 2018).
- The German government uses AI to investigate refugees for conspicuous characteristics, e.g. terrorism (Biselli/Meister, 2019).

If something goes wrong with the AI, entire populations are affected

How is AI used by public organizations and what are the dark sides?

Dark and unexpected sides of this development





- Al facilitates opportunities for governments to discriminate, oppress and surveil, risking civil and human rights as well as privacy and freedom of speech (Lyon, 2014).
- Digital service delivery by governments requires rating, scoring and predicting citizen behavior and opinions (Katzenbach/Ulbricht, 2019).
- Governments withhold analyzed information on individuals for "security reasons" (Hansen/Flyverbom, 2014).
- A racial bias in predictive policing misidentified white high-risk defendants as low risk and low-risk black defendants as high risk (*Angwin et al., 2016*).
- "The boundaries [in China] between civilian and military research and development [on Al] tend to become blurred." (Larson, 2018).



- Chinese government is using AI-based surveillance tools with CCTV to surveil and oppress Uighurs (Chin/Bürge/Marchi, 2017).
- Automation of work practices may lead to bureaucratic inefficiencies because it facilitates pragmatic forms of resistance amongst employees, particularly an increase in informal team working practices (Lammi, forthcoming)

Al has countless further application fields with billions of beneficiaries

How is AI used by voluntary/alternative organizations and what are the dark sides?

Fields of AI application



- Al with its scalability is especially valuable to fields with billions of beneficiaries: health and hunger, education, security & justice and equality & inclusion. (Chui et al., 2018)
- Al can play a vital role in the fight against COVID-19, i.e., predict infection hotspots, facilitate the drug & vaccine development and improve diagnostic & treatment (e.g. Raza, 2020; Vaishya et al., 2020)
- Al facilitates the personalization of politics thus changing the political environment (Bennett, 2012).



- In land cover mapping, Al autonomously annotates and classifies satellite imagery to evaluate the impact of climate change on natural resources (e.g. Robinson et al., 2019).
- Al identifies and tracks endangered species (e.g. Nipko et al., 2020; Koivuniemi et al., 2019; Parham et al., 2018).



Voluntary organizations can benefit from AI due to its scalability, but does the benefit outweigh the associated risks?

How is AI used by voluntary/alternative organizations and what are the dark sides?

Dark and unexpected sides of this development



- An Al blocked black patients to receive a kidney transplant (Simonite, 2020b).
- Information generated by AI blindly trusted can result in serious risks, e.g. misdiagnoses of patients (Chui et al., 2018).
- Social media algorithms may hinder collective activism due to underlying profit-orientation (*Etter/Albu, forthcoming*).







How should AI be governed in and by organizations responsibly?

Towards a governance perspective on AI



see also Amoore (2020), Scherer & Voegtlin (2020)

12.11.2020

Who (should) govern Al?

Towards a governance perspective on AI



The Al itself

- Certain AI systems may be developed more transparent, auditable, explainable and with awareness for unfairness & potential risks (e.g. Satell/Sutton, 2019; Pasquale 2015).
- Some machine learning algorithms and other de-biasing tools are developed to detect biases in data (e.g., Almeida, 2020)
- Yet, algorithms are calculative arrangements that require biased assumption to function in the world. (Amoore, 2020)



Firms

- Some firms are aware of their "oppressing" algorithms and attempt to improve them (*Noble*, 2018).
- Al practitioners place little value on harm or risk by Al, furthermore they report a lack of organizational governance of Al (Chowdhury et al., 2020).
- Tech elites: Google offers to review AI as a service for ethical aspects (Simonite, 2020a).



Government

- German KI Strategy
 "AI made in Germany"
- The "right to explanation" in the US and EU may not be sufficient. First, consumers and citizens may not use this right due to unknowingness that AI was applied to them and second, this transparency may not trigger changes to unfair AI.
- Algorithmic officers/ministries? The government of New York City has a task force responsible for the city's used AI, which i.a. support citizens if they believed an AI "harmed" them (Heimstädt, 2019).
- Growing role ambiguity (Trittin et al. forthcoming)



Third party

- Al auditing conducted by a third party may find unfairness and risks which a firm's developers may not find due to operational blindness and/or a prevalent human bias. Third parties could automatically review existing Al systems (*Etzioni/Li*, 2019).
- Participatory systems, citizen science



Responsible Al

Fields for future research on responsible AI



"Doubts are good. Confusion is excellent. Questions are awesome. All these are attempts to expand the wisdom of mind." (Manoj Arora, <u>Dream On</u>)



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Organization Special Issue "The dark and unexpected sides of digitalization", soon available online first here: https://journals.sagepub.com/home/org

See my open access master course on datafication here: https://dataandorganisations.org/

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Images directory (1|2)

#2 Agenda

- Artificial Intelligence icon made by author "Eucalyp" from https://www.flaticon.com/free-icon/artificial-intelligence 2752775.

#3 Why should we discuss the dark sides

- "Artificial Intelligence gets a seat in the boardroom" screenshot from https://asia.nikkei.com/Business/Artificial-intelligence-gets-a-seat-in-the-boardroom checked on 10/25/2020.
- "An AI Bot Names Einstein Critiques Salesforce Execs Every Week" screenshot from https://fortune.com/2018/01/25/salesforce-benioff-einstein-davos-ai/ checked on 10/25/2020.
- "World's largest hedge fund to replace managers with artificial intelligence" screenshot from <u>https://www.theguardian.com/technology/2016/dec/22/bridgewater-associates-ai-artificial-intelligence-management_checked_on</u> <u>10/25/2020</u>.

#4 Private firms – Fields of AI application

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#5 Private firms – Dark and unexpected sides

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#6 Public organizations – Fields of AI application

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#7 Public Organizations - Dark and unexpected sides

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