



How human friendly is ChatGPT for knowledge workers? Analyzing opportunities and risks of generative AI with the FriendlyTechCheck (FTC)

Dr. Anja Gerlmaier & Dr. Paul-Fiete Kramer

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Competence center humAIne - Transfer hub of the Ruhr metropolis for human-centered work with AI

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- Duration: 01.04.2021 - 31.03.2026

Project goals:

- Development of proactive process models for comprehensive participation in the processes of developing, implementing and monitoring AI systems
- Transfer of skills for the design of human-centered work systems
- Development of a suitable tool for the proactive design of AI systems for operational process managers

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Working in the age of AI and its impact on safety and wellbeing at work

- Generative AI such as ChatGPT is increasingly being used as a work tool, especially in knowledge-based professions (Felten et al., 2023; Ali et al. 2024)
- Areas of applications (e.g.): on-demand explanations, translation, content creation
- **Opportunities**
 - reduction in work load for routine tasks (Ali et al. 2024)
 - increasing qualification (new skills, interdisciplinary expertise)
 - Increasing productivity (Khalif et al. 2023)
- **Psychosocial Risks**
 - Lack of transparency (and explainability) of AI systems increases cognitive load
 - Digital control and surveillance can affect mental health (Backhaus 2019)
 - Feelings of job insecurity due to risks of automation and substitution (Gmyrek et al. 2023)
 - Risk of de-professionalisation; loss of specific skills

Research questions

- Some knowledge and assumptions about possible chances and risks of generative AI; however: further research on job specific risks/opportunities is needed (Hosseini et al. 2023)
- **What are health, safety and wellbeing opportunities and risks associated with integrating generative AI technologies in knowledge/research work?**
- And: German labour law stipulates that the risks and opportunities of AI-based technologies must be considered in relation to the health, safety and wellbeing of workers
- **How can opportunities and risks be proactively identified and translated into human-centred design requirements?**

FriendlyTechCheck (FTC)

Objectives

- Identification of **system characteristics that strengthen human resources** (“friendlyAI”), e.g. reduced workload, skill development, autonomy, social interaction
- Identification of **system characteristics with unfavorable effects** on people (“unfriendlyAI”), e.g. risk of accidents, de-qualification, injustice, social conflict

Target group

- Dialogical evaluation tool: procedure of the FTC structures the **dialog** on potentials and risks of the system between **responsible persons** and **actual users**
- In addition to assessing various dimensions of human-centeredness, the tool can be used to **document specific ideas and approaches** for a human-centered design of work systems

FriendlyTechCheck: Dimensions and items

Dimension	Item (example)
Wellbeing	The system can increase user's self-esteem (e.g. reducing fear of making mistakes).
Fairness	The system may have negative effects on employment.
Usability	The system can be used intuitively.
Autonomy	System results are often not comprehensible.
Competence development	The system gives more time for stimulative work.
Social interaction	Using the system may cause social isolation.

Method / Participants

- Use of the FTC-Tool to explore employees' perceptions about opportunities and risks of generative AI (ChatGPT) in their daily work
- Respondents: **9 members of a research and development team** of a German research institution with more than 30.000 members in several departments
 - mostly engineers, age range between 30 and 60 years, mostly male
 - 7 team members, one manager and the responsible person for safety and health

Findings (I)

Dimension	Potentials	Risks
Wellbeing	System can increase user's self-esteem (6)	System can create the feeling of being less needed (5)
	System can reduce stress (5)	System can promote stress (4)
Fairness	System promotes new job opportunities (4)	System may have negative effects on employment (5)
		System may have negative effects on income (4)
Usability	System can be used intuitively. (7)	Using the system promotes additional effort (5)
	The system is useful for compensating personal weaknesses. (9)	System cannot be adjusted to personal needs (4)

“Then you are the universal expert for nothing at all.”

“It's possible that the result will be that you'll no longer get full time positions [...]”

“You can apply this intuitively, but you won't get good results.”

Note: Numbers in brackets = Number of respondents who agree with the statement

Findings (II)

Dimension	Potentials	Risks
Autonomy	System makes suggestions, user is action holder (8)	System results are often not comprehensible. (5)
	To the system you can work more autonomously (8)	
Competence development	System can support learning new issues (9)	Insufficient training with the system (9)
	System gives more time for stimulative work (9)	Using the system leads to dequalification (4)
Social interaction		Using the system may cause social isolation (6)
		System can promote social tensions (4)

“And then it's easier to ask ChatGPT than to ask a stressed colleague.”

“[...] now it is common practice that further training is your individual problem.”

“But you used to do that [brainstorming] with colleagues and then that falls away.”

Note: Numbers in brackets = Number of respondents who agree with the statement

Ambivalent and partly surprising results

- ChatGPT is especially described as a supportive tool to cope with boring tasks and **blockade of thoughts**
- It gives new opportunities for **quickly gaining an overview** in unknown research areas
- As main dangerous issue of ChatGPT the **loss of social support** is pointed out (collective problem solving, reduced confidence in colleagues)
- Suboptimal explainability and insufficiently knowledge about prompting were identified as crucial risk factors for new AI specific mental problems (**fear of failure or fake**, addictive behaviors and more workload because of additional control efforts)
- Participants do not fear the risks of automation, but fragmentation of tasks and **insecure employment** as a long-term consequence of GPT use

Users Requirements for a trustful and responsible GPT adoption

- **Employers instructions:** the employer has a responsibility to raise awareness about the potentials and risks of GPT
 - **Training:** employer should provide deepening prompt trainings
 - **User Groups:** formation of user groups with early adopters and interested users for specific issues (e.g. GPT use in specific research issues)
- **Conclusion:**
- FTC framework promotes a structured dialogue about friendly and responsible AI use in organisations
 - Good team reviews in case study about FTC as a risk analysis tool

Thank you very much!

Contact information

University of Duisburg-Essen
Institute for Work, Skills and Training
Forsthausweg 2
47057 Duisburg

Dr. Anja Gerlmaier
Tel.: +49 203 37 92408
Anja.gerlmaier@uni-due.de

Dr. Paul-Fiete Kramer
Tel.: +49 203 37 91387
paul-fiete.kramer@uni-due.de

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