

AI-driven Behavior Change Techniques for more Sustainable Consumer Behavior

Your ideas regarding this topic are more than welcome

Motivation

In today's increasingly digital world, it is crucial to explore how artificial intelligence (AI) can influence behavior to promote sustainability. This relevance is underscored by the United Nations' Sustainable Development Goal 12, which focuses on sustainable consumption. AI systems hold great potential to guide and encourage individuals toward more sustainable actions by leveraging advanced behavior intervention strategies. In this thesis, students will examine how AI-driven interventions can be designed and implemented to influence consumer behavior and evaluate their effectiveness in fostering sustainable practices.

12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



Source: <https://textilesforsdgs.org/sdgs/goals/12-responsible-consumption-and-production/>

Research Question

- How can AI behavior change techniques be used to contribute to sustainable consumer behavior?

Contact



Fabian Probst

Approach / Literature

- Structured literature review according to [Webster & Watson \(2002\)](#) on AI behavior change techniques for more sustainable consumer behavior. Developing a framework with the results of the literature review ([Schwarz et al. \(2007\)](#)).
- Data collection and analysis to test the effectiveness of AI Behavior Change Techniques.
- Abraham, C., Michie, S. (2008). A Taxonomy of Behaviour Change Techniques Used in Interventions. *Health Psychology*, 27(3), 379-387.
- Schoormann, T. et al. (2023). Artificial Intelligence for Sustainability—A Systematic Review of Information Systems Literature. *Communications of the Association for Information Systems*, 52.
- del Prete, M. (2022). Mindful Sustainable Consumption and Sustainability Chatbots in Fast Fashion Retailing During and After the COVID-19 Pandemic. *Journal of Management and Sustainability*, 12(1).

Chatbots and Sustainability

Motivation

- Ecological crisis drives the growing consumer awareness of the environmental and societal impact of our consumption habits.
- The adoption of new consumption models is based on conscious decisions made by customers.
- AI technologies such as chatbots may offer customers new ways for interacting with organizations and receiving environmental and ethical information.
- Chatbots could serve as a viable strategy to enhance consumer awareness, potentially promoting sustainable consumption patterns.
- Thus, it should be investigated how chatbots can help to catalyze conscious customer choices.



Source: AI-generated with Canva

Research Question

To what extent and in which ways can chatbots act as catalysts for conscious customer choices? How do chatbots impact users' attitudes and behaviors regarding pro-environmental behavior?

Contact



Katharina Breiter

Dominik Becker

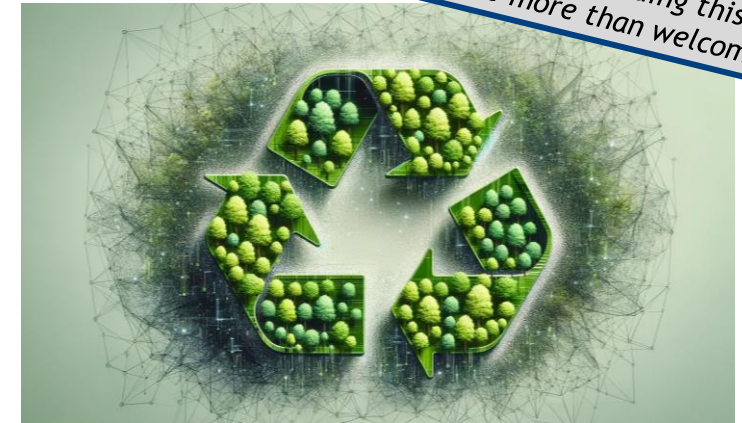
Approach / Literature

- First possible approach: Structured literature review according to [Webster & Watson \(2002\)](#) on chatbots and conscious customer choices.
- Second possible approach: Design Science Research according to [Sonnenberg und vom Brocke \(2012\)](#) or [Peppers et al. \(2007\)](#).
- Third possible approach: Conduct a survey-based vignette experiment according to [Rossi \(1979\)](#) or [Rost \(2018\)](#).
- Literature: [Gimpel et al. \(2023\)](#), [Schützler et al. \(2020\)](#), [Diederich et al. \(2019\)](#) or [Prete \(2022\)](#).

Circular Economy & Digital Technologies

Motivation

- Our throw-away culture consumes and wastes more resources than Earth can sustain, threatening our planet.
- The circular economy, which keeps materials in use through renting, sharing, repairing, and recycling, offers a sustainable path for economic growth.
- Digital technologies like AI and IoT are crucial for integrating these circular models in businesses by enhancing data analysis, flexibility, and process optimization.
- While such models can boost profits and open new revenue streams, few companies have adopted them.
- Thus, exploring how digital technologies can facilitate circular business models is essential.



Your ideas regarding this topic are more than welcome

Source: AI-generated with DALL-E

Research Question

How can organizations implement and utilize digital technologies to establish circular economy practices?

Contact



Katharina Breiter

Approach / Literature

- First possible approach: Structured literature review according to [Webster & Watson \(2002\)](#) on digital technologies and circular economy.
- Second possible approach: Design Science Research according to [Sonnenberg und vom Brocke \(2012\)](#) or [Peffer et al. \(2007\)](#).
- Literature: [Pagoropoulos et al. \(2017\)](#) and [Zeiss et al. \(2021\)](#).

Co-Creating the Future: The Impact of AI on Human Creativity in the Workplace

Motivation

- ChatGPT, Gemini and Microsoft Copilot have made Artificial Intelligence (AI) accessible to all aspects of life and fundamentally transforming them. This shift has significantly impacted professional settings, especially when it comes to creative work. In these areas, AI has shown to be particularly helpful, providing valuable support and enhancing creativity.
- The advent of these technologies has not only transformed the way individuals interact with them on an individual basis but has also significantly altered the collaborative creativity within teams.
- This transformation has yielded multifaceted implications for the creative pursuits of both individuals, groups and the whole organization.



Research Question

How does the integration of AI in the workplace impact individual and collective creativity, and what strategies can be identified to foster and enhance creative processes?

Contact



Kathrin
Endres



Frederik
Schöttl

Approach / Literature

- Literature analysis on Creativity and AI
- Data collection and analysis to identify strategies to foster and enhance creative processes in the AI era
- Basic Literature:
 - Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Assessing the work environment for creativity. *Academy of management journal*, 39(5), 1154-1184.
 - Wadinambiarachchi, S., Kelly, R. M., Pareek, S., Zhou, Q., Velloso, E. (2024). The Effects of Generative AI on Design Fixation and Divergent Thinking. *Computer Human Interaction 2024*
 - Grabner, I., Klein, A., & Speckbacher, G. (2022). Managing the trade-off between autonomy and task interdependence in creative teams: The role of organizational-level cultural control. *Accounting, Organizations and Society*, 101, 101347.

Digital & Sustainability Transformation in Organizations

Your ideas regarding this topic are more than welcome

Motivation

- Management agendas are currently determined by two trends: digital transformation (DT) and sustainability transformation (ST). Both trends have opened up numerous opportunities for business models.
- The convergence of both trends, namely **twin transformation**, is becoming increasingly important in practice.
- An investigation of the phenomenon is crucial, as managers are increasingly confronted with the digital world and, at the same time, ambitious climate protection targets.
- Yet, the adoption of twin transformation in organizations remain relatively unexplored...



Source: AI-generated with DALL-E

Research Question

- How can organizations transform digitally and sustainably?
- What is the status quo of companies (in a branch of your choice) regarding digital & sustainability transformation?

Contact



Katharina Breiter



Feline Schnaak

Approach/ Literature

Possible Approach:

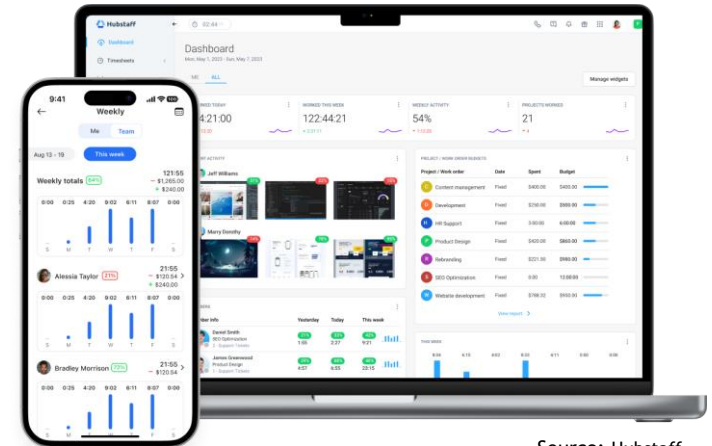
- Structured literature review according to [Webster & Watson \(2002\)](#) regarding twin transformation
- Developing a framework (e.g., reference model, taxonomy) according to [Schwarz et al. \(2007\)](#) or [Nickerson et al. \(2013\)](#), which summarizes and visualizes the results of the structured literature review
- Expaches including focus groups or expert interviews

Literature: [Graf-Drasch et al. \(2023\)](#), [Brenner and Hartl \(2021\)](#), [Del Rio Castro et al \(2021\)](#), [Zimmer and Järveläinen \(2022\)](#)

Digital People Analytics - From Monitoring to Empowerment

Motivation

- The use of people analytics software is becoming increasingly prevalent. Providers such as Hubstaff (illustrated on the right) facilitate the generation and visualization of data, encompassing, for instance, the duration of use of various applications and the localization of employees.
- However, many companies currently lack a comprehensive measurement of success (e.g., of digital work actions), despite the numerous opportunities for tracking through data.
- Although the term monitoring is primarily associated with the supervision of employees, the collection and visualization of data enables the identification of challenges in the daily work of employees, thereby facilitating the implementation of countermeasures.
- This can be particularly beneficial for managers in situations where the team is working in a hybrid mode, which necessitates a reduction in direct contact between managers and employees, as well as between employees themselves.



Source: Hubstaff

Research Question

How can digital people analytics be used to empower and support employees in their work? (e.g., promote productivity and an employee-centric work environment)

Contact



Kathrin
Endres



Daniela
Grünert

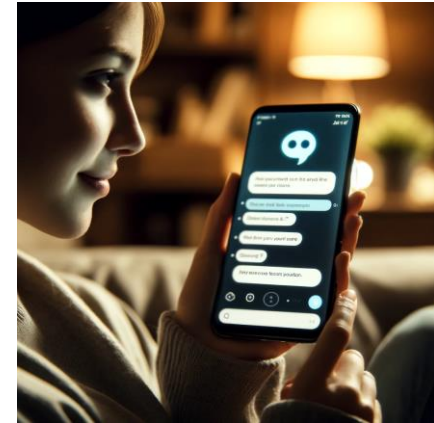
Approach & Literature

- Literature analysis on Digital People Analytics
- Data collection and analysis to identify strategies to foster and enhance the work and productivity of employees
- Basic Literature:
 - Tursunbayeva, A., Di Lauro, S., & Pagliari, C. (2018). People analytics—A scoping review of conceptual boundaries and value propositions. *International journal of information management*, 43, 224-247.
 - Siegel, R., König, C. J., & Lazar, V. (2022). The impact of electronic monitoring on employees' job satisfaction, stress, performance, and counterproductive work behavior: A meta-analysis. *Computers in Human Behavior Reports*, 8, 100227.
 - Manokha, I. (2020). The implications of digital employee monitoring and people analytics for power relations in the workplace. *Surveillance and Society*, 18(4).
 - Arnold, M. C., Hannan, R. L., & Tafkov, I. D. (2020). Mutual monitoring and team member communication in teams. *The Accounting Review*, 95(5), 1-21.

Exploring the Potentials of Generative AI for Digital Inclusion

Motivation

- Society is undergoing profound change as a result of digitalization (Matt et al., 2019).
- To be able to participate in social life in a meaningful way, digital skills in dealing with information systems are increasingly required (Reisdorf and Rhinesmith, 2020).
- At the same time, there are population groups who, due to limited cognitive abilities, are unable to develop the necessary digital skills. These groups face significant challenges in an increasingly digital world and the risk of social exclusion.
- Research should therefore aim to support the development of inclusive information systems that take into account the needs of cognitively impaired individuals. Recent developments in the field of generative AI, in particular ground-breaking multimodal models such as GPT-4o, offer new possibilities in this area.



Source: Generated by DALL-E3

Research Question

How should conversational agents be designed for use by cognitively impaired individuals?

Contact



Philipp Dilger



Dominik Fetzter

Approach / Literature

- Search and identification of relevant literature: Conduct a structured literature review about existent inclusive design approaches for conversational agents
- Interviews with the target group to identify possible inclusive design approaches
- Implementation and evaluation of identified integrative design approaches using a self-developed prototype
- Initial literature: [Dewan and Riggins \(2005\)](#), Working paper: Dilger et al. (2023), [Wei et al. \(2011\)](#)

Gamification in digital applications to support individuals' physical and mental health

Motivation

- An unhealthy lifestyle, e.g., prolonged sitting, unhealthy diet or stress, are significant risk factors for the development of chronic physical and mental diseases and thus represent a considerable financial burden for the healthcare system
- Numerous digital applications already exist that are designed to motivate individuals to adopt a health-conscious lifestyle through gamification or game design elements (e.g., points, leaderboards, badges, rewards).
- However, there is limited evidence on the effectiveness and impact of gamification in the context of health-conscious behavior and habit building. Moreover, due to their extrinsic incentive strategy, gamified health applications are often used only for a short period of time.
- Because of this research gap, further scientific work is needed on how gamified health applications should be designed to improve the long-term health of their users.



Research Question

How does the integration of gamification into digital health applications influence healthy and sustainable user habits?

Contact Person



Carolin Jung



Britta Ingwersen

Approach / Literature

Sample introductory literature of existing gamification studies in the context of health and its potential negative effects:

- Johnson et al. (2016) „Gamification for health and wellbeing: A systematic review of the literature”
- Schmidt-Kraepelin et al. (2019) “Gamification in Health Behavior Change Support Systems - A Synthesis of Unintended Side Effects”
- Whelan, E. and Clohessy, T. (2021), "How the social dimension of fitness apps can enhance and undermine wellbeing: A dual model of passion perspective"

Design and implementation of gamification elements using an online experiment or survey, sample literature:

- Schmidt-Kraepelin et al. (2019) „Users' Game Design Element Preferences in Health Behavior Change Support Systems for Physical Activity: A Best-Worst-Scaling Approach”

Hybrid Work Practices

Motivation

- Hybrid Work relates work arrangements in which individuals shift on the continuum of working face-to-face and remotely where the arrangement is enabled through IT.
- To keep employees satisfied, organizations have started to support hybrid work with different practices (e.g., providing equipment, location autonomy)
- However, trends like great resignation and quiet quitting underscore to pay attention to worker motivation and retention.
- Thus, we need an understanding on the relationships between hybrid work practices and employee behavior in organizations.



Research Question

What practices do organizations use and implement to support hybrid work? What influences do these practices have on job satisfaction, job engagement, and organizational commitment of the employees?

Contact



Julia Lanzl

Approach / Literature

- Literature search including academic literature as well as practitioner-oriented literature to identify practices related to hybrid work
- Quantitative survey and regression analyses to investigate the relationships between hybrid work practices and outcomes like job satisfaction, job engagement, and organizational commitment
- Literature:
 - Lamovsek et al. (2024): Beyond the office walls: Work design configurations for task performance across on-site, hybrid and remote forms of work. *Information Systems Journal*.
 - Zeuge et al. (2022): The New Normal of Virtual Team Cohesion: A Qualitative Study to Investigate the Impact of COVID-19. *AMCIS 2022 Proceedings*.

Digital (Transformation) Leadership

Motivation

- Leadership has changed drastically in the last few years, but which behaviors make a leader successful in a digital context remains unclear, as well as how this way of leading impacts the leader (e.g. [Tuschner et al. 2022](#)). Leaders also carry most of the responsible to driving digital transformation within organizations ([Weber et al. 2022](#)), yet more knowledge is needed what makes a leaders a successful transformational leader.
- In addition to the ongoing impact of digital leadership and specific behaviors of leaders in a digital work environment on employees in terms of well-being and/or productivity is not fully understood yet ([Kaluza et al. 2020](#))
- Understanding the dynamic interplay of leadership and ist impact on employees and managers alike is crucial for driving digital transformation and organizational success in the future.



Source: Microsoft Copilot

Research Question

- How is leadership impacted by digitalization? How does leadership impact digital transformation within organizational?
- How impactful are established leadership concepts in a digital world and how are they changing?
- How does digital leadership impact employee and leader well-being?

Contact



Britta Ingwersen

Approach / Literature

- Structured literature review (e.g., [Webster & Watson, 2002](#)) on digital leadership and relevant behaviors or competencies. Developing a framework (e.g., [Schwarz et al. 2007](#)), which summarizes and visualizes the results of the structured literature review.
- Semi-structured interviews or moderated focus group (e.g., [Myers & Newman, 2007](#)) with leaders on digital leadership competencies or with CIOs, CHROs, and other experts to explore new digital competencies.
- Cross-sectional survey on the relationship between digital leadership (behaviors), and employee and/or leader well-being.
- Meta Analysis (e.g., [Field & Gillett, 2010](#)) on the relationship of digital leadership (behaviors) and relevant outcomes (e.g. employee or leader well-being)

Learning with new friends: AI-driven learning platforms

Motivation

- Digital learning is on the rise. At the same time, more and more people are interacting with chatbots and virtual assistants. With our research we want to combine these aspects.
- AI-based learning platforms could provide support not only to meet the individual needs of learners and thus increase their motivation and learning success by providing individualized trainings, but also to present them in a pedagogically valuable way and in accordance with external requirements (guidelines, training objectives, ...).
- Various components have to be taken into account. Furthermore, there is currently no standardized procedure for the implementation of an AI-based learning platform.



Source: [Designed by vectorjuice / Freepik](#)

Research Question

How can an e-learning platform be designed that integrates AI to support personalized learning and knowledge transfer?

What are the components of e-learning that can be enriched with AI?

Contact



Daniela Grünert

Approach / Literature

- Structured [literature review](#) on AI and learning platforms (including e-learning).
- Developing a framework on how to design a e-learning using AI.
- [Design Science Research](#) approach: Designing an AI driven learning platform
- Literature:
 - Kabudi et al., 2021, [AI-enabled adaptive learning systems: A systematic mapping of the literature](#)
 - Vargas-Murillo et al., 2023, [Challenges and Opportunities of AI-Assisted Learning: A Systematic Literature Review on the Impact of ChatGPT Usage in Higher Education](#)

LLM design to support knowledge work

Motivation

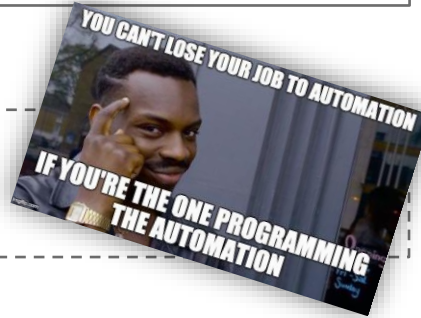
- “...Our scenarios suggest that half of today’s work activities could be automated by 2055, but this could happen up to 20 years earlier...” - Harnessing automation for a future that works, McKinsey Global Institute (2017)
- The incorporation of automation into the world of work is no longer a novelty in the age of digitalization
- With the advance of generative AI, tasks can increasingly be taken over by knowledge workers, such as the correction of scientific theses (seminar theses, bachelor’s and master’s theses)



Source: Artificial Intelligence ADOBESTOCK_138972731

Research Question

How should an LLM system be designed to (partially) automate the correction of academic theses?



Contact

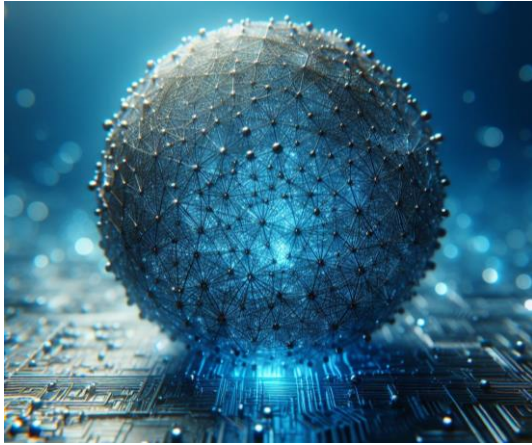


Stefanie
Lahmer

Approach / Literature

- Literature review of existing literature on LLMs in knowledge work
- Design science research for the development and testing of an artifact according to Hevner et al. (2004)
- Wang et al. 2023, A Survey on Large Language Model based Autonomous Agents
- Wu et al. (2023). AutoGen: Enabling Next-Gen LLM Applications via Multi-Agent Conversation. arXiv preprint arXiv:2308.08155
- Sonnenberg, C. & vom Brocke, J. (2012). Evaluations in the science of the artificial - Reconsidering the build-evaluate pattern in design science research. In K. Peffers, M. Rothenberger, & B. Kuechler (Eds.), Lecture Notes in Computer Science, Design Science Research in Information Systems: Advances in Theory and Practice (pp. 381-397). Springer. https://doi.org/10.1007/978-3-642-29863-9_28

LLMs for Agentic Work Automation (AWA)



Source: Microsoft Copilot

Motivation

- In most companies, knowledge work is barely structured, implicit, labor-intensive and error-prone. The increasing shortage of skilled workers and the time-consuming training of new employees lead to low efficiency and high costs.
- Autonomous LLM-based agents have the potential to implement end-to-end automation of previously unstructured, complex and knowledge-intensive activities and counteract these challenges.
- The way in which this can be implemented has hardly been researched to date and requires flexible and practical methods, such as the Design Science Research approach, to capture and investigate the concept.
- In addition to the technical perspective, AWA has a variety of effects on individuals, companies and society that have not yet been investigated.

Research Question Examples

- How should an LLM-based multi-agent system that can automate knowledge work be designed?
- Which orchestration patterns of LLM-based multi-agent systems are particularly suitable for the automation of knowledge work?
- What are the implications of LLM-based automation of knowledge work for companies and management?

Contact



Dominik Fetzner

Approach / Literature

- Wang et al. 2023, A Survey on Large Language Model based Autonomous Agents.
- Yining Ye et al. (2023). Proagent: From robotic process automation to agentic process automation.
- Wu et al. (2023). AutoGen: Enabling Next-Gen LLM Applications via Multi-Agent Conversation. *arXiv preprint arXiv:2308.08155*.
- Sonnenberg, C. & vom Brocke, J. (2012). Evaluations in the science of the artificial - Reconsidering the build-evaluate pattern in design science research. In K. Peffers, M. Rothenberger, & B. Kuechler (Eds.), *Lecture Notes in Computer Science, Design Science Research in Information Systems: Advances in Theory and Practice* (pp. 381-397). Springer. https://doi.org/10.1007/978-3-642-29863-9_28

Reimagining Stress: Coping with and Recovering from Digital Stress

Motivation

- The knowledge about digital stress has grown a lot in the past few years and much is known about digital hindrance stress ([Gimpel et al. 2024](#)) and digital challenge stress ([Tarafdar et al. 2024](#)).
- Yet not much is known about how individuals cope with digital stress in the moment and recover from digital stress in the long-term ([Tarafdar et al. 2020](#), [Rowher et al. 2022](#)).
- Coping refers to the immediate response individuals have to a stressful situation, while recovery refers to a prolonged process that allows individuals to return to their baseline state after experiencing stress or other demands ([Sonntag et al. 2022](#), [Sawney et al. 2018](#)).



Source: Microsoft Copilot

Research Question

- How do individuals cope with digital stress? Which coping strategies are more effective than others?
- How do individuals recover from digital stress?
- How does the dynamic interplay of digital stress, coping and/or recovery affect well-being?

Contact



Britta Ingwersen

Approach / Literature

- Structured literature review (e.g., [Webster & Watson, 2002](#)) on digital stress and coping or recovery. Developing a framework (e.g., [Schwarz et al. 2007](#)), which summarizes and visualizes the results of the structured literature review.
- Semi-structured interviews or moderated focus group (e.g., [Myers & Newman, 2007](#)) with experts to explore new aspects of digital stress and coping or recovery.
- Cross-sectional survey on the relationship between digital stress, coping behaviors and/or recovery experiences and activities.
- Meta Analysis (e.g., [Field & Gillett, 2010](#)) on the relationship of digital stress aspects, coping behaviors, recovery and relevant outcomes (e.g. employee or leader well-being)

There is AI in SustAInability

Motivation

- The world is facing a series of huge sustainability-related problems, which together are called grand challenges
- In 2015 the United Nations published its 17 Sustainable Development Goals, an urgent, important, and strategic call for solutions to these grand challenges.
- Artificial intelligence (AI) is an all-changing technology, which is more ubiquitous than ever in public discourse due to a giant leap forward in generative AI technology
- With a steadily increasing use, questions on ethical and virtuous use of AI arise
- If put in use sustainably, AI may open up great opportunities for taking sustainable development to the next level
- Even though first research endeavors on AI for environmental sustainability exist, efforts to structure the existing knowledge to motivate future research endeavors are missing and already defined as a research need

Research Questions

- How can AI be employed for environmental sustainability?
- How are existing classification systems for AI for environmental sustainability evaluated by experts in the domain?

Proposed Method

There are manifold possibilities for evaluation of existing classification systems for AI for environmental sustainability following [Nickerson et al. \(2013\)](#) and [Kundisch et al. \(2022\)](#):

- Interviews/focus groups with experts
- Case studies of organizations employing AI for environmental sustainability
- Clustering of AI systems as quantitative approach



Source : <https://www.majorel.com/future-customer/science-and-research/artificial-intelligence-and-sustainability/>

Contact



Feline Schnaak

Exemplary Literature

- [Nishant et al. \(2020\)](#)
- [Kar et al. \(2022\)](#)
- [Schoormann et al. \(2023\)](#)
- [Goralski and Tan \(2020\)](#)
- [Vinuesa et al. \(2020\)](#)

Tomorrow's Talents: Shifting Competencies in the Digital Age

Motivation

- Especially through (generative) AI, the requirements for employees are changing rapidly. What has been perceived as necessary competency in recent years may no longer be relevant in a few years.
- In addition to established competencies, such as critical thinking, new competencies such as AI competencies are emerging and gaining importance.
- What are the competencies of the future? This change in competencies is rapid and should be explicitly considered in the future. Only through the observation of these requirements can students, employers, and employees prepare for the workplace and be ready for the future of work in the digital age.



Your own ideas on this topic
are more than welcome!

Source: Microsoft Copilot

Research Question

What competencies will be most crucial in the future workforce, and how will they evolve amidst technological advancements and socio-economic changes?

Contact



Frederik
Schöttl

Approach / Literature

- Structured literature review (e.g., [Webster & Watson, 2002](#)) on future competencies. Developing a framework (e.g., [Schwarz et al., 2007](#)), which summarizes and visualizes the results of the structured literature review.
- Semi-structured interviews or moderated focus group (e.g., [Myers & Newman, 2007](#)) with HR-Experts.
- Survey to measure shifts of competencies.
- Literature for orientation: [van Laar et al., 2019](#), [Merchel et al., 2021](#); [Eloundou et al., 2023](#); [Gimpel et al., 2023](#)