Shaping AI Innovations – Learning Along the Way: Recommendations from the Co-Creative Research Project ai:conomics

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About the "ai:conomics" research project

The use of intelligent technologies in companies is changing the way we work. Artificial intelligence (AI) has a direct impact on how work is organized. This leads to changes in work tasks, skills requirements, and productivity. AI also impacts working conditions and the well-being of employees in the workplace. The transdisciplinary research project ai:conomics aims to expand the scientific knowledge on the effects of AI on work and employees. To this end, ai:conomics conducted controlled field studies in the first project phase from 2021 to 2024 in large companies in Germany and the Netherlands that have introduced AI tools for various purposes. The direct impact of AI implementation on job characteristics, skill profiles, employee preferences and perceptions, and productivity was measured using performance metrics. The findings were linked to general developments in the German labor market and complemented by differentiated analyses of AI-related changes using German register data. The knowledge generated in this way serves as a solid evidence-based foundation to better understand and consciously shape the future of work and the use of human-centered AI.

The research project is based on an innovative approach of co-creative collaboration between researchers, employers, employees, technology experts and works council members. In this way, it was possible to shape and pursue knowledge interests as well as the design and implementation of research in the dynamic field of operational AI use in an agile partnership. During the project, trans-sectoral exchange between stakeholders from business, politics, science, and civil society was encouraged. As a result, the scientific knowledge gained was complemented through practice-oriented discourse and findings were quickly transferred to the debate among interest groups, experts, and the public.
Further information on the project, its content and results can be found on the project website.

Introduction

AI in business practice is a highly dynamic and rapidly changing field. For the foreseeable future, phases of consolidation in which artificial intelligence (AI) can be examined and reflected upon under stable contextual conditions are not to be expected. Anyone who wants to better understand how AI technology transfer affects productivity and the reality of work in the company and how AI implementation processes can be designed effectively and successfully must therefore learn from the implementation of agile AI innovation processes.

The ai:conomics research project spent three years gathering scientifically sound knowledge about the impact of AI on companies, work, and employees. This included conducting controlled field studies in large companies. This resulted in numerous specific experiences. This policy brief shares the most important findings. It is intended as a stimulus for companies implementing AI, to encourage and to give orientation to:

- aligning the companies innovation culture and processes with the continuous AI learning process.
- understanding AI innovation as a cross-company design field and setting the exchange with experts from other companies as a standard practice.
- seeing practice and implementation research as complementary to each other and being able to better overcome uncertainties and challenges together.

The content is based on several years of intensive and confidential collaboration between the research and project partners and several partner companies and the exchange of information with numerous company experts in the context of interviews and dialogue events. Nevertheless, they represent observations of individual cases. They are to be understood as inspiration and a stimulus for discussion, and do not claim to be universally valid.

For the sake of clarity and readability, the recommendations and underlying observations are deliberately kept brief. Accompanying footnotes refer to in-depth sources and analyses that were developed as part of the research project.

Shaping together: AI implementation as a co-creative learning process

Operational AI implementation is a team sport: If AI projects are to deliver on their promise of productivity gains and sustainable positive operational effects, technological solutions, organizational changes and new working realities must be developed in an integrated manner.

Successful projects have involved numerous internal stakeholders in the development of content and decision-making, from brainstorming to the development of innovation projects ready for implementation and the rollout to the wider business. Trusting, solution-oriented cooperation between company management, project teams and the works council is an important quality feature. Behind this often lies the willingness for corporate cultural transformation processes.

> **Recommendation 1:** Targeted, needs-oriented capacity building for key stakeholders.

Who needs which skills to contribute productively to AI implementation? Employees who will be affected in the future need sufficient AI literacy[1] to incorporate their needs and experiences in their day-to-day work into the design of the AI solution. The managers in charge of the process need the understanding and the methodological toolbox to implement participation effectively. It is worth ensuring that these competencies are built up across the board or on an ad hoc basis.[2, 3]

> **Recommendation 2:** Agile corporate culture - try things out, make mistakes, reflect.

AI projects are usually developed based on specific use cases in which the technology promises innovation potential or solutions to problems. Senior experts report that the viability for the breadth of operational practice, economic efficiency and the clarification of detailed legal issues often still play a subordinate role in brainstorming and prototyping and only come into focus in later development phases. These 'innovation seeds' flourish all the better

1 For a definition of the term, see Wienrich et al. (2022): AI Literacy: Competence dimensions and influencing factors in the context of work. Working Paper.

2 See also: Silbernagl, C., Fregin, M.-C., Erbacher, K., Pahl, B., & Tegtmeyer, L. (2024). Trust, transparency, encouragement: Starting points for the design of operational AI innovation processes. (pp. 1-10). ROA. ROA External Reports Vol. 005 No. ai:conomics Policy Brief July 2024.

when companies provide the freedom to try things out. Agile, low-hierarchy corporate cultures are conducive to innovation and process learning, as they integrate experimentation, iteration loops and open reflection on obstacles and failure in everyday life. Last but not least, overarching structures and processes to promote innovation strengthen the generation and development of ideas. And resources are needed for exchange to design a legally compliant and ethically, ecologically, and socially responsible technology - especially in large organizational structures with a risk of silo formation.[3, 4]

Recommendation 3: Process design and moderation as key success factors.

Cooperation between internal stakeholders is accompanied by complex polyphony. Consciously designed participation processes are fundamental to ensuring that cooperative and reciprocal learning processes and joint reflection can be used productively. Change or transformation teams with AI expertise can fulfill this role, as can suitably qualified members of an AI project team. In addition to process skills, a transparent mandate for the role and sufficient time resources for tasks such as moderation, internal communication, knowledge management or onboarding new stakeholders are critical to success.[2, 3]

Making your own experimentation a topic: Cross-company exchange on process design and transformation

While the cross-company exchange on technological approaches and the business potential of AI is becoming increasingly lively, questions regarding the design of implementation processes still largely remain within the black box of individual companies. This is often due to complex internal decision-making and negotiation processes. Uncertainty about the scope for communication and the disclosure of uncertainties, mistakes, or failures in the practice of this key future technology seem to limit the willingness for cross-company exchange. Yet change managers and transformation officers emphasize the potential of *peer exchange* precisely because of the (social) complexity of operational AI projects. This is because practice-oriented exchange about challenges and good practice in the introduction of operational AI can reduce barriers to innovation and minimize costly planning errors and process delays.

Recommendation 1: Find suitable spaces for exchanging experiences - and gradually expand them.

AI projects are characterized by an above-average level of uncertainty. This makes it difficult to exchange information across company boundaries. However, uncertainty often decreases the further a project is developed. This opens opportunities to use the potential for practice-oriented exchange for your own company: In the early stages of development, from brainstorming and elaboration to the initial testing of project concepts, confidentiality within one's own organization can provide the security needed for risk-taking experimentation. In order to benefit from the transfer of experience and mutual inspiration in these phases as well, early dialog across departmental boundaries or locations is a good idea. If the AI project enters the project implementation phase, the communication and discussion radius can be expanded, e.g., to include small groups of trusted company partners or consortia. Independent third parties such as public actors, foundations or research institutes can also serve as a platform to ensure the transfer of experience in anonymized form, e.g., in the form of studies or dialogue events.[2, 5] It is helpful for the collective learning process to share experiences publicly, at the latest during rollout and after project completion. This also includes failed and aborted projects that have hardly been talked about to date - they have great potential for insight.

Recommendation 2: Clarify the communication framework - and gradually expand it.

Gradually entering the exchange and public debate with your practical experience can be a challenge for the employees responsible: What am I allowed to say? How much can I disclose? A communication framework established with the company management and the communications department provides security - even more so if it contains concrete language rules that enable internal stakeholders to talk about their actions. While forms of an-

3 See also: Erbacher, K., Silbernagl, C., & Schäfer, K. (2024). Co-creation in Business Practice: Implementing AI together at Eye-Level. (pp. 1-13). ROA. ROA External Reports Vol. 006 No. ai:conomics Policy Brief October 2024.

4 Video on the topic of "Brilliant Failures" from a presentation at the ai:conomics Dialogue Forum 1.

5 ai:conomics dialog forum 2.

onymization and generalization, e.g., in interviews or at networking events, are helpful in the early stages, the communication framework can be continuously adapted and expanded to give those with experience a meaningful space to participate in the discourse.

Invite critical friends: Collaboration with independent research

The potential and risks of AI are on everyone's lips and concrete application examples are enriching the public discourse. At the same time, discussions in the public sphere and in company management circles still have to make do with little scientific evidence on the topic that could strengthen decisions with reliable data and analyses. Reducing this gap in the dynamic field of AI development is a task and a challenge for applied research as well as for the business sector: In order to do justice to the speed of technological development and the complexity of practical application, we need a shared curiosity for knowledge and an openness to accompanying research in the process.

It's worth it, because for companies, a detailed understanding of the impact of AI on the organization, its employees and productivity offers an opportunity to strengthen the positive effects of AI. Researchers bring a lot of valuable input to the table: A high level of specialist and contextual knowledge on the topic, a neutral external perspective and, last but not least, productive irritation, which is sometimes needed to break up deadlocks or get an overview of the big picture. Research projects can serve as 'neutral ground' on which all relevant internal stakeholder groups can come together anew. This gives management, the works council, AI innovators and employees the chance to establish better processes and a new transformative culture of innovation.

At the same time, research in a business context poses several challenges. The scientific and entrepreneurial perspectives differ fundamentally in terms of their objectives, needs and priorities. For example, field studies require a certain degree of predictability and continuity, while innovation projects are characterized by agility and corporate management must also adapt the course of the project to external factors. Even if both sides share a common interest in better understanding, conflicts can arise with regard to the findings, their transparency and their classification: How can 'undesirable' results be dealt with in such a way that research freedom and corporate interests are equally taken into account?

Stable relationships and shaping collaboration as a co-creative process help in dealing with these and other challenges:

> **Recommendation 1:** Identifying good use cases for innovation-related research together.

If a company is willing to open itself up to in-process research, it seems obvious to choose a strategically highly relevant AI project as the subject matter. It may be worth taking a step back and examining the entire portfolio of current and planned AI projects for good 'researchability' with the research team. Randomized experiments, which promise the highest gain in knowledge, entail specific requirements. The insights gained are usually highly transferable within the company.

> **Recommendation 2:** Recognize different approaches in research and operational innovation and shape the path together.

As described, tensions regarding needs, processes and goals between companies and science are already inherent in the practical research of AI. They do not have to become a stumbling block if they are recognized as part of the collaboration, made visible and negotiated in a solution-oriented manner. The start-up phase is fundamentally important here: perspectives can be shared in start-up workshops and goals and the type and manner of collaboration can be agreed. These in turn make it easier for the company AI project teams to represent the project and its requirements internally. The more relevant internal stakeholders from management, the works council, compliance, and communication are involved, the more sustainable the coordination will be. In terms of iterative learning, it is advisable to see the company employees and researchers as a joint project team and to use regular meetings to strengthen cooperative working practices, plan the course of the project and co-creatively develop the research design in line with the agile changes to the AI project. They also provide an opportunity to regularly review the agreements made and adjust them if necessary.

> **Recommendation 3:** Understand collaboration as a shared mission.

For this cross-organizational and cross-cultural collaboration to succeed, it requires attention, time resources and process-shaping skills on the part of researchers and practitioners. Third parties can make

it easier to get started by designing and facilitating the start-up workshops and support the development of key skills such as perspective-taking or agile working methods. It helps if the time for productive collaboration is planned for the team and the people responsible see the success of the collaboration as their shared mission.

Learning together, shaping the future

We shape the world of tomorrow today – this insight rarely becomes as concrete as in the field of AI innovation. In order for AI to be effective in its potential for the economy, work, and society and to limit its risks and uncertainties, it needs to be tried out, accompanied by learning and consciously managed. The area of evaluation and analysis goes beyond what is technically possible and economically successful and includes ethical considerations of the impact on people, the world of work and society.

Similar to successful AI innovation, effective learning is a collaborative process requiring diverse contributions to thrive. It is an invitation to take responsibility for shaping the new technology together: With a desire for innovative experimentation, a willingness to invest in shared knowledge and an openness to new experiences - so that the future with AI is even more successful.

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