appliedAI
institute
for europe

appliedAI Institute for Europe

Compass 2025

Contents

Foreword

Artificial Intelligence (AI) has rapidly become one of the most powerful technologies of our time and its applications are reshaping the way we work and live at an unprecedented pace. However, in addition to the immense opportunities AI technologies and their applications have for economy, society and culture, they also present complex challenges. Thus, we as appliedAI Institute for Europe, draw attention to the development and deployment of Trustworthy AI, addressing principles like fairness, transparency, robustness, accountability, and inclusivity. Only in this way can we ensure that AI serves as an engine for economic growth and innovation, while also respecting social and ethical standards that guide us as a society.

Seeing innovation and the protection of fundamental rights not as opposing forces but mutually reinforcing elements of trustworthy AI, this balance requires an ecosystem built on a sociotechnical perspective, broad participation, transparent processes, and effective support for affected stakeholders. Thus it is clear that AI technologies and applications cannot be viewed in isolation and solely as products, they are embedded within a network of actors, institutions, and societal structures. In order to remain competitive in the future, we must be brave and actively shape the responsible development and deployment of AI technologies within the European AI Innovation Ecosystem.

> **"AI was now a responsibility. For all of us."**
>
> Fei-Fei Li

The establishment of the appliedAI Institute for Europe gGmbH marks our commitment to serving as a central harbor within this ecosystem. Our vision is to become Europe's open-access accelerator for trustworthy AI supporting the AI Transformation and the AI Innovation Ecosystem. This means creating an independent platform that makes knowledge accessible, provides resources, and connects key stakeholders to form flourishing communities. Our goal is not only to foster AI innovations that are technologically groundbreaking but to also empower the different stakeholders and professionals in the AI Innovation Ecosystem and beyond to develop and apply latest AI technologies responsibly. Thus we support building up digital and technical sovereignty, driving innovation and fostering collaboration to shape a future we desire to live in.

This Compass Document guides through insights into our identity and our approach, highlighting currently two pillars: strategic clarity and impact measurement. We have defined seven strategic roles – scouter, agenda setter, knowledge broker, enabler, experimenter, network builder and tool provider – that structure our contributions to the empowerment of professionals within and beyond the AI innovation ecosystem. At the same time, we measure our success by the impact we achieve. For us, impact is not an abstract concept but the currency by which we evaluate our contributions to the trustworthy development and deployment of AI.

Additionally this report reflects on the progress we made over the past year and demonstrates the already achieved significant milestones. In terms of Trustworthy AI we are actively engaged in working groups and discussions with the **AI Office** and also transfer this knowledge into valuable resources like the **Compliance Journey,** making it easier to navigate through the AI Act. Additionally, our study **"AI Regulation Made in Germany?"** has provided actionable insights for the national implementation of the European AI Act equipping policymakers with concrete recommendations to establish a trustworthy and innovation-friendly AI environment. With our different **educational offerings**, like Online-Courses, Trainings & Workshops and AI Career Programs, we enabled several thousands of people to do their first or next steps in developing and applying AI technologies, while the establishment of the **aai Studio at the IPAI Spaces in Heilbronn** has created a vibrant space onsite for exchange, learning, demonstration and collaboration. Our commitment to enabling innovation is further demonstrated by our provision of valuable resources and **open-source tools**, such as **optimagic**, which simplifies numerical optimization for practitioners without deep algorithmic expertise, **sbi**, which focuses on trustworthy parameter inference for simulators and our **filesystem-spec backend for lakeFS**, which enhances versioned data operations for seamless integration with data science tools.

The **AI Startup Landscape** alongside its additional studies is not only a data base with German and European AI startups – it provides a deep analysis of the ecosystem's strengths and challenges and also demonstrates our strong European collaborations. We have also prioritized fostering collaboration and capacity building through various **Events, Matchmaking** and the establishment of an **AI Developer Community**. All these achievements reflect our dedication to empowering professionals and shaping a future where AI is developed and deployed in a responsible way.

We also look ahead to the challenges that we want to tackle in the upcoming year. With that we aim to professionalize our structures and processes as a solid base and strengthen our position as a trusted partner in the European, German and local AI ecosystem to shape our large-scale and long-term impact.
We warmly invite you to join us on the next steps of our journey and in contributing to empowering a trustworthy AI ecosystem in Europe, Germany, Munich, Heilbronn and beyond. It is our collective responsibility to shape this transformation and ensure that it benefits all of society.

With heartfelt thanks for your support and trust,

Dr. Frauke Goll

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Facts + Figures

Vision

The appliedAI Institute for Europe is the open-access accelerator for trustworthy AI.

> 36 events and offers in our appliedAI Studio since opening in Summer 2024

Mission

Empowering professionals to develop and apply latest AI technologies responsibly, shaping a future that we desire to live in.

2022 founded in Summer

> 4.200 Downloads of our knowledge resources

~ 10.000 per month Downloads in our Reinforcement Learning Library

Offices based **Munich + Heilbronn**

> 2.300 Participants in our online courses

> 358 hours of playback time on YouTube

~8000 GitHub stars in our Reinforcement Learning Library

> 2.334 Views of our GenAI video tool library on YouTube

Our Story

Humans are born explorers. It's in our nature to set sail from the safety of home to expand the boundaries of what we know. To fearlessly brave the open seas in search of more knowledge, of untold riches, and of adventure. We've chased every horizon on Earth, and even reached out to the stars. But now we've found ourselves on the shores of a new only partially uncharted territory: Artificial Intelligence.

To navigate these waters safely though, we need those who are brave enough to get on board. We need those who see both the perils and pearls that AI has to offer. Those of us who are aware of the dangers, but know it is our duty to explore the outer reaches of what is possible with AI, and ensure its responsible use. Those who want to shape history.

To those eager explorers, we'd like to welcome you to the appliedAI Institute, Europe's first port of call for adventures in AI.

Every grand voyage must begin somewhere after all—and it's best to start in a place of stability. Which is why we´ve assembled the finest and curious minds to picture an holistic approach in artificial intelligence to create an open access accelerator for knowledge creation and transfer, open-source resources and community building about AI.

As a nonprofit institution, our goal is to help the world navigate toward a brighter future with AI. At our harbor, we welcome professionals from every field to embark on their journey toward mastering trustworthy AI. We support those that are less experienced in the seas of AI taking their first steps and gaining knowledge about what they can expect. We collaborate with brave adventurers that themselves have already explored the seas to learn together and overcome challenges. And we empower those, who are responsible and contribute to set the frame for economical development, foster innovation and responsible use of AI for all of us. Our influence spans European, national, and regional waters, driving meaningful impact. AI technologies are powerful tools that we know can improve our lives - if we use them right.

Operating out of our physical home bases in Heilbronn and Munich, we've created a bustling campus where knowledge about trustworthy AI flows freely, and journeys big and small can set sail.

It's a place where you can connect with other like-minded explorers and learn what you need to master or to just explore the possibilities of the high seas. Our educational programs upskill professionals across every industry, whether it's your first foray into artificial intelligence, or you've already blazed your own trails. The horizon of our harbour and what we aim for is a world where AI enhances lives, fosters innovation, and bridges societal gaps - always with ethics at the forefront.

By providing easy access to our knowledge base and expertise, professionals everywhere can learn how to responsibly use AI to better themselves, their organizations, and the world. It's a ripple effect that can make waves. While working on this our values are the guiding stars by which we navigate.

But ultimately, at the appliedAI Institute, our goal is to be Europe's open access accelerator for Artificial Intelligence. Because this is where education, legislation, and exploration converge. This is where cutting edge research turns into open source tools for everyone to benefit from. This is where your next adventure in AI begins.

This is

appliedAI Institute Charting New Waters.

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What we want to achieve

To meet our vision and advance Europe's AI Innovation Ecosystem, we will pursue our purpose by working with three focus areas: **Knowledge, Resources and Community.** As it is important for us to create impact, we want to be mission-driven in our work in the future. Thus we started a process to work jointly at the impact strategy and define missions and indicators that drive our work. At the core we continuously assess what we can learn from our offerings, deciding what to continue and what to stop on the basis of its potential for impact at scale.

To succeed we will need to professionalise, strengthen our offerings, raise our visibility and build strong relationships with policymakers, industry and academics. Our offerings will need to create impact at different levels of the European AI Innovation Ecosystem, from individual learning over fostering collaboration for innovation and building creative ecosystems to grander interventions that support the definition and establishment of frameworks and incentives that drive innovation and economic power. Thus every year we set focus topics to work on and accelerate the AI Innovation Ecosystem. We strongly believe that through the empowerment of professionals to develop and apply latest AI technologies responsibly, we can shape a future we desire to live in.

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Our Vision

Being the Open Access Accelerator on Trustworthy AI empowering the European AI Innovation Ecosystem

The appliedAI Institute for Europe envisions itself as the **open-access accelerator for trustworthy AI**, supporting the AI Transformation and the AI Innovation Ecosystem by empowering professionals to develop and apply latest AI technologies responsibly. Trustworthy AI adheres to principles such as fairness, transparency, robustness, accountability, and inclusivity. With that we are building digital and technical sovereignty, driving innovation and fostering collaboration to shape a future where AI-based technologies benefit society, strengthen -economic resilience, and empower diverse stakeholders to address global and local challenges.

As an open-access accelerator we first of all understand ourselves as a safe space for everyone to address questions on Trustworthy AI and learn about the development and application of new technologies. There you will find high quality knowledge and experts that guide your development. Collaboration and several resources foster innovation and are provided to support the digital transformation by serving as a catalyst through connecting resources, expertise, and stakeholders. Additionally, as being an independent non-profit organisation, we serve as Thought Leaders and Specialists for promoting a holistic view on AI, taking ethical principles and social values into account, as well as drawing attention to use AI for Social, Public and Environmental Impact to solve global challenges.

Our Focus Topics 2025

Preparing fertile ground for Trustworthy AI Development, Deployment and Governance

AI Regulation & AI Governance

The rapid pace of AI technologies underscores the importance of regulation and governance as a means to mitigate negative impacts and ensure safety in the development and deployment of AI systems. The EU AI Act, which came into effect on August 1, 2024, sets one of the main frameworks for regulating AI systems within the European single market. As discussions unfold at the EU level on the gradual rollout of risk-based regulations and concretizing regulatory requirements with technical standards, member states are now tasked with implementing and enforcing these policies on a national level. The implementation of the AI Act requires a structured cooperation model that integrates existing and new institutions into a participatory process. Thus, shaping effective and efficient governance –both institutions and processes – is essential.

In this realm, we recognize that innovation and the protection of fundamental rights are not opposing forces but mutually reinforcing elements of trustworthy AI. Achieving this balance requires an ecosystem built on a sociotechnical perspective, broad participation, transparent processes, and effective support for affected stakeholders. To create this fertile ground for the development and deployment of trustworthy AI, it is essential to empower stakeholders across the AI ecosystem to follow ethical and legal requirements by providing high quality content and resources, fostering the knowledge transfer, giving guidance and opening the room for the exchange of experience and trusted expert discussions. This approach can support the effective translation of principles into practice, reduce compliance costs, shorten timeframes for achieving compliance through automation, and promote cooperation with supervisory authorities.

Our institute is committed to foster effective and efficient AI regulation and governance through empowering professionals across the AI innovation ecosystem by

- defining a holistic approach that integrates ethical, legal, and technical aspects to ensure the trustworthiness of AI systems,
- conducting research on AI governance and identify areas for further action,
- providing concise insights on AI regulation to raise awareness and understanding,
- participating actively in expert discussions and committees, such as the AI Office
- leading roundtable discussions with experts from academia, industry, civil society and policy to address AI regulation and governance challenges,
- publishing guidelines, whitepapers, studies, surveys and best practices for AI implementation and governance
- offering practical sessions on implementing trustworthy AI principles,
- educating the next generation on AI regulation and governance, and
- building and nurturing a network of AI professionals to foster collaboration and shared learning.

AI Skills & AI Literacy

As AI continues to shape industries and societies, developing AI skills and literacy is crucial for preparing individuals to navigate and leverage the opportunities of this transformative technology. However, AI skills and competencies present a complex landscape to define and develop, given their vast scope and the varying requirements across different AI-related roles. To build a strong foundation and empower professionals effectively, we must clearly define AI competencies and educational pathways, ensuring appropriate skills are developed throughout one's career journey.

Our institute is committed to foster knowledge about AI Skills, advancing AI literacy by offering a range of high-quality learning experiences that cater to various expertise levels and engage ourselves in setting frames for high quality AI education. We aim to raise awareness, promote AI education across sectors, and empower professionals to develop and apply latest AI technologies responsibly. By integrating both theoretical foundations and practical applications, we seek to create a broad base of AI knowledge and foster continuous skill development. Thus we will empower professionals to embrace the potential of AI by

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- defining AI Competencies needed at different professional and educational levels, to ensure targeted and relevant learning,
- providing interactive educational formats, including workshops, online courses, practical demonstrations, and career programs that help learners specifically in the required AI Competencies for their needs,
- offering concise and accessible resources to enhance AI literacy, ensuring that both beginners and experts understand the fundamentals of AI and its applications
- using practical tools, such as AI Demonstrators and the aai Studio, to provide learners with interactive, real-world AI experiences
- carrying out studies to identify gaps in AI education and competencies, and publishing findings to inform future learning strategies.
- creating and disseminating whitepapers, guidelines, and best practice documents to support the development of AI skills and literacy.
- facilitating collaboration through talks & presentation as well as networking opportunities, creating a vibrant space for knowledge exchange and peer learning.

AI Development & AI Adoption

To accelerate Trustworthy AI Development and AI Adoption, it is essential to provide open access to state-of-the-art tools and libraries, facilitate cutting-edge research, and create environments for collaboration between academia, industry, and startups to foster innovation across industries. A strong AI Innovation Ecosystem will empower organizations as well as the public sector to leverage AI effectively and drive real-world impact, ranging from research breakthroughs to practical solutions.Therefore it is also essential to draw attention to the AI Innovation Ecosystem itself and analyse its nature, its stakeholders and its development. These insights might also enable policymakers to make well-informed and data driven decisions.

Our institute is committed to supporting the development of cutting-edge AI technologies and advancing AI development and adoption by offering high-quality resources, empowering innovative startups, and promoting knowledge transfer and co-creation. By fostering collaboration between stakeholders across the quintuple helix, we aim to bridge the gap between academic research and practical application, enabling the AI Innovation Ecosystem to leverage benefits from developing and adopting AI technologies. Specifically, we aim to create a thriving AI Innovation ecosystem that drives innovation and delivers tangible benefits by

- accelerating the adoption of AI through fostering knowledge about AI use cases and innovative startup solutions via the Use Case Platform and our (European) AI Startup Landscape,
- providing access to essential resources for the development of AI including tools and libraries, like sbi, optimagic, lakeFS-spec and Tianshou, enabling developers to build, experiment, and scale AI solutions effectively,

- supporting cutting-edge AI research, contributing to scientific advancements, and identifying breakthrough innovations through research projects, contributions at academic conferences and establishing a strong researcher community,
- facilitating collaboration between academia, industry leaders, and startups to solve complex challenges, share expertise, and co-create practical AI applications
- creating dynamic communities through events, hackathons and meetups where AI professionals, researchers, and entrepreneurs can share knowledge, collaborate on projects, and accelerate innovation.
- publishing studies and surveys with data-driven insights about the current state of the AI Innovation ecosystem, its stakeholders and its development as well as giving recommendations for further strengthening it.

AI for Social, Public and Ecological Impact

AI has the potential to drive meaningful change across society, supporting inclusive and positive social, public, and ecological outcomes. However, technology is not a standalone solution to complex societal challenges. It must be embedded within broader frameworks that include ethical considerations, democratic values, and systemic approaches to ensure its effectiveness and legitimacy. To guarantee that the use of AI contributes to the common good and to leverage its potential, it is essential to guide its development and application with a focus on sovereignty, security, democracy, ethics, and sustainability. Thus, to foster this development it is important to empower professionals to create and apply better and efficient processes and services by public administrations, foster social entrepreneurship and address ecological challenges effectively supported by the latest AI innovations.

Our institute is committed to contribute to the responsible development and adoption of AI technologies that drive public interest AI that promotes societal well-being, strengthen public resilience, and support ecological sustainability by

· promoting AI technologies that enhance digital and technological sovereignty, prioritizing security, transparency, and the resilience of AI systems to safeguard against misuse and ensure responsible usage
· advancing the responsible and ethical development of AI, ensuring that systems are designed to protect human and fundamental rights, tackle bias, and promote fairness, equality, and inclusivity
· advocating for the use of AI to tackle urgent societal challenges, such as public health, education, and social equity

· supporting the role of AI in strengthening democratic processes, ensuring transparency and accountability in AI application used for instance for public governance, political decision-making, and in elections helping public sector organizations adopt AI solutions to enhance government services, improve operational efficiency, and ensure transparency and accessibility
· promoting the role of AI in advancing sustainability goals, including the development of AI solutions that address environmental challenges, reduce carbon footprints, and promote ecological resilience
· fostering Social Entrepreneurship through empowering Startups and Founders with AI skills and knowledge
· publishing thought leadership and position papers that provide insights and recommendations on the ethical, democratic, and ecological use of AI technologies
· Offering educational sessions that equip stakeholders with the knowledge and skills to implement AI in socially responsible and sustainable ways
· facilitating events and meetups that empower communities and individuals to thrive in an AI-driven society, focusing on AI's role in public policy, social impact, and sustainability
· facilitating events and meetups that empower communities and individuals to thrive in an AI-driven society, focusing on AI for public interest.

How we achieve our goals

With its transformative power AI is shaping the future of our world, our lives, our economies and societies. This suite of technologies offers tremendous potential for good, promising supporting solutions for the larger societal challenges and broader progress on the Sustainable Development Goals (SDGs).

However the latest developments show that AI technologies can evolve quickly and could rapidly reshape industries, change work processes and influence our lives. This is why we need to take action. It is important to take responsibility for the development, deployment and adoption of AI, be brave and step forward.

In Europe, with its high approach to trust and excellence, the development of a trustworthy AI ecosystem is of great importance. Hence, it is clear that AI cannot be viewed in isolation and solely as a product. It combines a huge variety of technologies and is embedded within a network of actors, institutions, and societal structures. Thus it can be only seen through the lenses of its sociotechnical embedding - bringing together different disciplines, diverse technologies, various stakeholders and drawing attention to their interrelations. Only together we can tackle the challenges, gaining competitive advantages and shaping the transformation. Only through the perspective of an ecosystem, will we succeed in establishing responsibilities across different actors, lay the foundation for Trustworthy AI based innovation and foster collaboration to drive the transformation. This is why we are focusing on empowering professionals to develop and apply latest AI technologies responsibly to support the AI Transformation, develop the AI Innovation Ecosystem and **shape a future we desire to live in.**

While Europe provides the overarching framework for trustworthy AI governance and innovation, our focus extends beyond its borders to understand global trends and dynamics. With Germany serving as a critical industrial leader and Heilbronn, being the most ambitious project for applied artificial intelligence in Europe, we can exemplify the transformative potential of regional hubs as catalysts for localized innovation.

However, to be successful in achieving our goals, we will need to overcome some of the most common barriers of young organizations, shaping ecosystems and driving innovation. According to the innovation phases in a first step a variety of seeds need to be sown. The second phase addresses the testing and learning from those activities. Focus needs to be set and a strong portfolio has to be established. The scaling phase then amplifies the best ideas and supports them to adapt, thrive and scale. Unfortunately, there are different barriers to overcome at every stage.

To guide our way and overcome these barriers, we, the appliedAI Institute, started a process of impact orientation and defined a set of strategic roles that will be focussing our work and the way we operate. They provide us with a structured framework and enable us to effectively empower the AI Innovation Ecosystem by addressing technological, societal and organizational challenges. By adopting these roles, the Institute positions itself as a key player in shaping the future of AI, its development, deployment and governance. Thus the impact orientation is our commitment to:
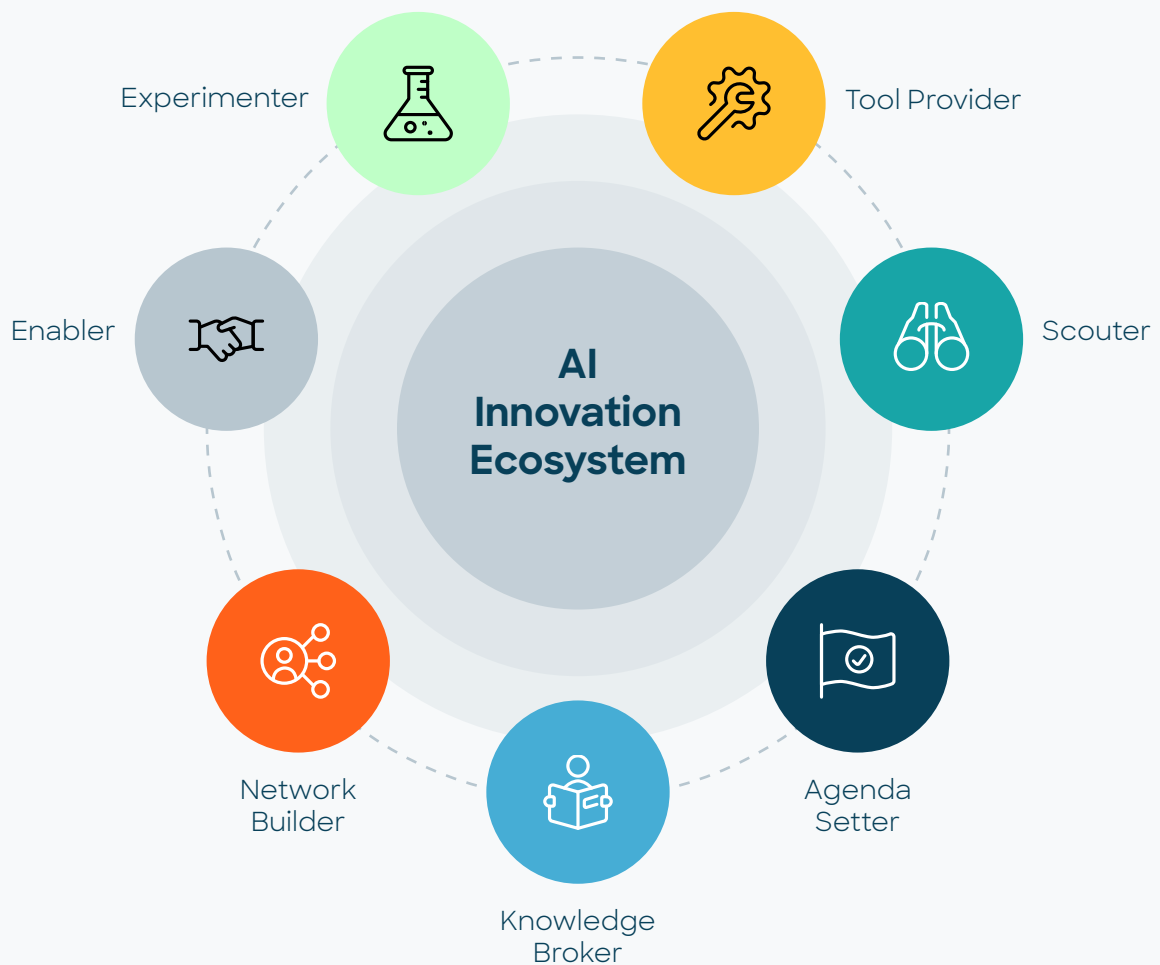

1. **Driving Transformation:** By actively shaping the evolution of the AI innovation ecosystem. Through strategic initiatives and empowering professionals to develop and apply latest AI technologies responsibly, we aim to not only respond to challenges but to anticipate them and directly support the AI transformation.

2. **Empowering Stakeholders:** Equipping organizations, professionals, organizations and policymakers to contribute to a thriving, trustworthy AI ecosystem and building up a digital and technological sovereignty. We do not focus on solely one target group as the ecosystem is an highly-interdependent network of different actors and layers.

3. **Ensuring Legitimacy:** By engaging with diverse stakeholders - spanning academia, industry, policymakers, and civil society - we ensure that our initiatives are rooted in a comprehensive understanding of needs, societal expectations and priorities. This legitimacy not only strengthens trust in our work but also underpins the credibility and acceptance of the solutions we promote within the ecosystem.

4. **Addressing Societal Challenges:** Developing initiatives that tackle real-world problems by leveraging new technologies and setting frameworks for their responsible use. This includes addressing pressing societal needs such as climate change, increased social injustice and the erosion of trust in public institutions. At the same time, we engage with challenges related to the societal implications of technology, such as managing the risks of discriminatory reinforced patterns, deepfakes, navigating the impact of AI on social media and fostering democratic resilience. By combining technological innovation with thoughtful governance, we strive to create pathways where advancements in AI serve societal well-being while upholding ethical and democratic principles.

Our Strategic Roles in Driving an Ecosystem of Trustworthy AI Innovation

Scouter

appliedAI Institute for Europe navigates through emerging trends.

As a Scouter, the Institute proactively anticipates future developments and identifies emerging trends that influence the AI innovation ecosystem. This role focuses on foresight and in-depth analysis, aiming to stay ahead of technological, societal, policy, and regulatory shifts.

The Scouter does not merely observe trends but actively analyzes their potential implications for the development, deployment and governance of trustworthy AI, providing our stakeholders with actionable insights on how to actively shape the European ecosystem.

> **"The annually published Startup Landscape by the appliedAI Institute for Europe provides arguably the most comprehensive overview of "startups in Germany focusing on artificial intelligence."**
>
> Wirtschaftswoche

For example, our activities include:

- With our **German and European AI Startup Landscapes** we provide a trusted resource to empower especially SMEs, multiplicators and policymakers with information about the Startup Ecosystem with over 1000 Startups as well as fostering collaboration between Startups and Companies. The yearly published report shows high evidence and has been quoted in the digital strategy of the federal government. Moreover the results have been featured in major newspapers such as Wirtschaftswoche, FAZ and Handelsblatt.

- Our experts actively contribute to academic innovation and the leading research community by **providing award winning papers and serving as reviewers for major machine learning (ML) conferences including** ICML, NeurIPS, ICLR, and AISTATS.

Agenda Setter

appliedAI Institute for Europe supporting transformative change in the AI Innovation Ecosystem by raising issues and advocating for solutions.

As an Agenda Setter, the appliedAI Institute plays a pivotal role in guiding the transformation of the AI ecosystem. This role goes beyond identifying societal challenges, it actively supports the broader process of technological, regulatory, and societal transformation required to ensure AI's responsible and impactful integration into Europe's future. With that we aim to create momentum for change by raising issues and advocating for innovative solutions. This means shaping the discourse on key innovation topics and ultimately driving collective action.

For example, our activities include:

· The study "**AI Regulation Made in Germany?**" provides a roadmap for the effective national implementation of the European AI Act. By identifying four key action areas - market surveillance authorities, notified bodies, regulatory sandboxes, and fundamental rights impact assessments - it offers concrete recommendations to establish a trustworthy and innovation-friendly AI environment.

· The appliedAI Institute is a formal stakeholder of the **AI Office's** efforts to draft a **Code of Practice** for specifying the requirements for providers of General Purpose AI Models. Such **GPAI Models** are adopted by numerous downstream providers in the EU, including startups, SMEs and the public sector, and the appliedAI Institute aims to strengthen their position in the light of commercial power-imbalance to foreign BigTech GPAI Model providers. Sections of our initial contribution (Sept 2024) can be found in the first draft of the Code by the AI Office.

· The appliedAI Institute for Europe embarked on a mission to deeply explore the generative AI startup ecosystem across Europe through the **Generative AI Study.** By conducting a comprehensive survey and leveraging detailed analysis, the study uncovers critical insights into the current state, challenges, and opportunities of generative AI startups in the region. This effort represents a collaboration between appliedAI Institute for Europe and partners from the European AI Startup Landscape, including Hub France IA, AI Sweden, Ignite Sweden, and The Netherlands AI Coalition. The study was cited in several media articles and, most importantly, also in the AI Innovation Package of the European Commission.

GenAI study

AI Regulation Made in Germany?

“How Europe truly stands in this race has now been analyzed for the first time in a study by the appliedAI Institute for Europe commissioned by the EU.“

Handelsblatt

“Both very timely and insightful, this study tackles what it takes for a successful EU AI Act implementation, with clear explanations of the interplay within the German quality infrastructure in the context of AI oversight – from conformity assessment to market surveillance. An essential contribution for AI starters and professionals alike looking to navigate this complex field!“
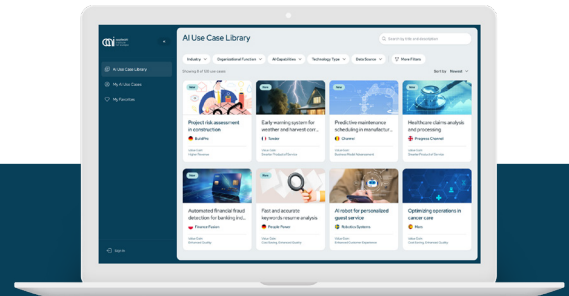
Dr. Patrick Gilroy
Head of AI and Education, TÜV

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Knowledge Broker

appliedAI Institute for Europe facilitates exchange, knowledge transfer and co-creation between different actors, sectors and disciplines.

As a Knowledge Broker, the appliedAI Institute plays a central role in connecting the diverse actors within the AI ecosystem. This includes facilitating the exchange of expertise and best practices between academia, industry, government, and civil society, ensuring that these groups work collaboratively toward the responsible development and application of AI technologies. Additionally, by fostering dialogue between researchers as well as experts, who generate cutting-edge knowledge and gain a high-level of expertise, and practitioners, who apply AI solutions in real-world contexts, the Institute ensures that innovation is both grounded in robust science and aligned with practical needs. This role is vital for breaking down silos, enabling the free flow of ideas, and creating shared understanding across sectors and disciplines.
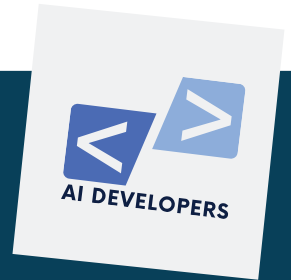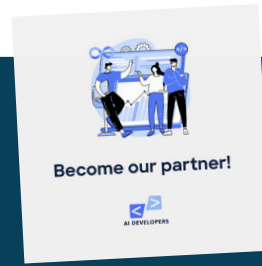
For example, our activities include:

- With the **AI Use Case Platform** we facilitate the exchange of expertise and best practices between contributors (e.g., AI startups, solution providers) who share their AI use cases and Users (e.g., SMEs, institutions) who apply the knowledge in their daily business. Apart from inspiration and learning by browsing the AI use cases platform and attending the regular meetups, the platform also enables users to interact and build instant connections with each other once you signed in.

- Our **matchmaking initiatives** - for instance, in Malmö or in Heilbronn - are designed as dynamic, in-person events that foster innovation through empowerment of Start-ups, SMEs and Tech Companies. Knowledge transfer and collaboration possibilities are facilitated in a "speed dating" style format, complemented by workshops, keynote impulses, and ample networking opportunities.

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- Our **Developer Community**, launched in September 2024 with Women in AI and Robotics, advances the AI ecosystem by connecting developers to solve real-world problems, co-create innovative solutions, and promote sustainable development. It's a collaborative space where AI developers share knowledge, provide mentorship, and offer resources.

- With the **appliedAI Studio** we aim on education, demonstration and collaboration. The collaboration program aims on fostering co-creation and innovation through orchestrated exchange between industry, science and public sector. The program will be set up in 2025.

- Together with the Agentur für Arbeit Heilbronn and the KI Campus we established a **Community of Practice** for exchange and knowledge transfer between academia, SME and initiatives to support AI adoption.

Network Builder

appliedAI Institute for Europe builds partnerships and enables collaboration.

The Institute, as a Network Builder, fosters collaboration and creates synergies within the AI ecosystem in Heilbronn, across Germany and beyond. This role involves establishing and maintaining networks, clusters, and partnerships that bring together diverse actors to address complex challenges collectively. By acting as a connector, the Institute builds trust and cooperation across sectors.

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For example, our activities include:

· We engage ourselves actively in initiatives and communities like GPAI, OECD, IPAI, Wissensstadt Heilbronn, Zukunftsallianz Heilbronn, PyData and additionally drive community building with own initiatives focused on Heilbronn, Startups, Developers and AI Regulatory Communities.

· The appliedAI Institute is part of the **Social Impact Republic**, a consortium funded by the Federal Ministry Education and Research supporting entrepreneurs to build technological solutions with social impact. With that we drive to establish Heilbronn as one hot spot for AI for Social and Public Impact, bring together engaged players to join forces and establish interactive formats, like meet-ups meet-ups, trainings and workshops to enable start-up founders to embark on the potential of AI for social good.

· We drive our own **events**, like the KI Konferenz für den Mittelstand, which we conduct twice a year in collaboration with the IHK in Heilbronn and Munich. Additionally we kicked off a theme focused event series "Shaping the Future" and specific conferences to deep dive on topics with our experts, like the Trustworthy AI Day. We have been present at events such as "Nacht der Wissenschaft" in Heilbronn, "Slush'D", "Experience Day" at IPAI, "Zukunftstagung 2024" of "Zukunftszenturm Süd", "AI Ethics Startup Day" at Porsche, "AI Basics" lecture series of IPAI and many others.

Experimenter

appliedAI Institute for Europe tests feasibility of concepts and provides insights on their implementation.

As an Experimenter, the appliedAI Institute takes an active and hands-on approach for testing and validating innovative ideas, tools, and approaches. Therefore we create controlled environments, such as sandboxes, demonstrators, or pilot projects, where new solutions can be tested under realistic conditions. This allows us to evaluate emerging tools and methodologies to assess their potential for enhancing Trustworthy AI development, deployment, and governance. Additionally with these environments we foster collaborative experimentation and also enable external stakeholders – such as startups, policymakers, and industry practitioners – to explore the practical implications and impacts of AI technologies. By reducing risks, identifying challenges early, and refining concepts before scaling, we contribute to the creation of solutions that are robust, responsible, and ready for broader adoption.

For example, our activities include:

- The **demonstration area of the appliedAI Studio** is a physical space within the IPAI Spaces where everyone can experience Trustworthy AI technologies and use cases through artefacts generated by the appliedAI Institute and its collaboration partners. E.g. via a concrete example, the concepts, components and importance of MLOps, and its relation to development ML in a trustworthy manner are being explained by our **MLOps demonstrator** to (non-technical) audiences visiting the IPAI. With the display of the Institute's Compliance Journey as an interactive demonstrator we enable visitors to understand the obligations of the EU AI Act. Presenting the Use Case Platform (UCP) before the official launch allows us to test features and user-experience while already inspiring visitors where they could use AI in their businesses.

- The Institute participated in the **KI-Kommue-Hackathon 2024** dedicated to exploring the use of AI in the public sector of Baden-Würtemberg. The team took on the challenge from the Regionalverband Neckar-Alb (RVNA) and developed a solution that could significantly support environmental planning in the region: a AI-based approach for analyzing satellite images to automatically and accurately identify "Streuobstwiesen" (traditional orchards) — a task that has so far been manual and time-intensive.

Enabler

appliedAI Institute for Europe empowers AI ecosystem participants to develop and apply latest AI technologies responsibly.

Being an Enabler is central to our mission of equipping practitioners, researchers, and policy-makers with knowledge, tools, and confidence needed to navigate the complexities of AI development and deployment.Through a combination of **education, training, and tailored guidance**, the Institute helps individuals and organizations build the capabilities required to leverage AI in impactful ways. Whether introducing foundational concepts or providing advanced, hands-on learning experiences, our goal is to create empowered professionals who can drive meaningful change within their domains.
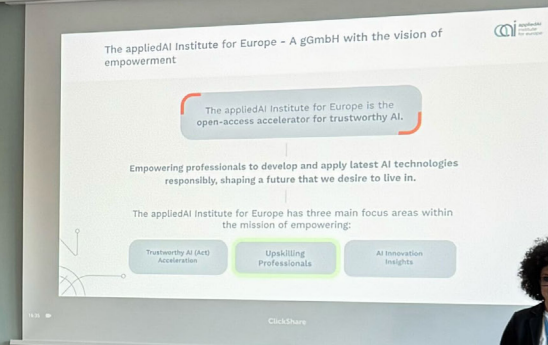
For example, our activities include:

- We enable AI adoption across different professional levels through a strategically structured portfolio of **Online Courses**, from AI Essentials which serves as a foundational entry point with over hundred new users monthly to specialized MLOps and advanced machine learning courses for machine learning practitioners. Our courses create scalable impact by serving as the cornerstone for AI upskilling programs in organizations ranging from law enforcement agencies (BKA, Police BW) to enterprises (Schunk, Würth, Bank11) and academic institutions (University of Koblenz), demonstrating their effectiveness in building systematic AI capabilities.

- Our **AI Career Programs** systematically build critical AI capabilities across the ecosystem by empowering different professional groups with the targeted knowledge and hands-on experience needed to succeed in AI careers. Our foundational AI Career Kickstart Program has been successfully enabling students to enter the AI workforce through an integrated approach combining theoretical knowledge, hands-on ML system development, expert mentorship, and industry internships. We've now expanded our programs with the Trustworthy AI Graduate Academy, which equips professionals with high-demand skills in AI regulation, governance, and robust ML system development through an accessible modular format, while our upcoming AI Beginner Program will further strengthen the ecosystem by enabling professionals from any background to transition into AI roles.

> **"The partnership between the Baden-Württemberg Police University and the appliedAI Institute has become a key pillar of AI training for the state police. With the integration of the e-learning program AI Essentials, we have taken a significant first step in delivering digital knowledge on artificial intelligence. In just two months, we have reached over 400 police staff, with numbers continuing to grow. In the ongoing redesign of our modular AI training, appliedAI is a valuable partner."**

Marc Brandt
Professor der Hochschule für Polizei Baden-Württemberg, Institut für Fortbildung - Cybercrime und digitale Spuren

"The Regulation module of the Trustworthy AI Academy managed to achieve a perfect balance of spoken lectures and interactivdiscussions and activities, and I loved how much opportunity I was offered with respect to asking questions to real experts."

SIR Participant - 24

- We draw on the appliedAI Institute's comprehensive expertise across AI topics to create a portfolio of **trainings and workshops**, that ranges from consistently sold-out introductory AI workshops that demystify the technology for beginners, to specialized career transition workshops for both job seekers and career counselors, to advanced technical training in MLOps, AI regulation compliance and ML and Software Engineering designer, each designed to provide participants with actionable knowledge and practical implementation skills. Through strategic partnerships with organizations like TUM-VL, CampusFounder programs, and the Frau und Beruf network, we extend our reach and multiply our impact, enabling a broader spectrum of professionals, startups, and organizations to build the competencies needed for successful AI adoption.

- The appliedAI Institute's **Generative AI video library** serves as a powerful enablement tool, democratizing AI knowledge and empowering (non-technical) professionals across various sectors to integrate AI into their daily work confidently and responsibly. The library's impact extends beyond its thousands of YouTube views, as organizations like Kiron, DLRG, and BKA have incorporated these resources into their internal training programs, demonstrating how our accessible, expert-led content creates a multiplier effect in building AI capabilities across diverse professional communities.

- **appliedAI Studio Tours**: Through guided interactive tours at the appliedAI Studio in Heilbronn, we enable professionals, students, and community members to build practical understanding of trustworthy AI applications, engaging with hands-on AI demonstrators and installations that make AI technology tangible and accessible. Our physical showcase of concrete examples and real-world AI projects complements our educational programs, demystifying AI technology and inspiring confidence in its implementation.

Tool Provider

appliedAI Institute for Europe provides practical tools to support trustworthy AI innovation and implementation.

As a Tool Provider, the appliedAI Institute for Europe emphasizes the development and dissemination of resources that enable stakeholders to implement Trustworthy AI solutions responsibly and efficiently.The Institute focuses on creating and maintaining tools, software packages, libraries, and benchmarking frameworks that support both scientific research and industrial applications. By addressing real-world challenges and advancing technical excellence, these tools facilitate the responsible development and deployment of AI technologies.

For example, our activities include:

- **Simulation-based Inference (SBI)** is an innovative method that leverages advances in machine learning (ML) and artificial intelligence (AI) to reliably calibrate scientific models while accounting for uncertainties, unlocking significant potential for scientific breakthroughs and industrial applications. Thus the appliedAI Institute plays a leading role in making these tools available to practitioners **through user-friendly and accessible software packages** in collaborations with the University of Tübingen and other academic institutions across Germany and Europe. The method and its implementation have proven highly effective for uncertainty quantification in automotive passive safety, particularly crashworthiness.

- **Optimagic** is an open source software package that provides algorithms to solve challenging optimization problems. While alternative solutions expect users to be experts in optimization, optimagic is designed to be easily accessible for practitioners from many different scientific and industrial fields. It has been used in a wide range of applications such as machine learning research, epidemiology, aerospace engineering and economics. The Institute joins forces with a team at the University of Bonn to spearhead the development of optimagic and support its large international community. For this, we cooperate with one of the major data science software providers in the world, SciPy.

- A filesystem-spec backend implementation for the **lakeFS data lake**. Our primary goal is to streamline versioned data operations in lakeFS, enabling seamless integration with popular data science tools such as Pandas, Polars, and DuckDB directly from Python. Lakefs-spec has been presented at PyData. The library is one of the recommended methods for working with lakefs, and promoted by the lakefs developers.

- **nnbench** - a small framework for benchmarking machine learning models - provides a portable, easy-to-use solution for model evaluation that leads to better ML experiment organization, and integrates with experiment and metadata tracking solutions for easy adoption. Benchmarking becomes an important part of the trustworthy AI workflow and is an important method for compliance to the AI Act.

- **Tianshou** is a state of the art reinforcement learning library used in industry and research. While other libraries either focus on practitioners who want convenient interfaces for training an agent or on researchers who want to quickly prototype a new algorithm, tianshou caters to both groups. Researchers of the Institute created an ambitious roadmap to make tianshou even more powerful and user friendly and have released two major versions that implement the proposed improvements.

> **"Optimagic has been a real game changer for my research. By allowing quick profiling of various optimizers and giving me access to modern algorithms, optimagic has saved me significant time, increased the reliability of my solutions, and reduced boilerplate code by 25%. This does not only let me focus more on my actual research but also reduced the potential for errors, making it an invaluable tool for economic research."**

Prof. Dr. Hans-Martin von Gaudecker
Economic Researcher

How we measure our impact

At the core of our mission lies a deep commitment to advance the AI Innovation Ecosystem by supporting the transformation process and creating positive societal change through trustworthyAI. Impact orientation is the guiding principle that ensures our work not only addresses immediate challenges but also delivers lasting, measurable benefits for the broader innovation ecosystem. It reflects our accountability to stakeholders, our dedication to fostering a trustworthy AI ecosystem, and our ability to respond effectively to evolving societal needs and geopolitical dynamics.

Measuring Our Impact Across Levels: Output, Outcome, and Impact

To fulfill our vision and mission, the institute analyzes its contributions across three interconnected levels: Output, Outcome, and Impact. This structured approach ensures we can track the effectiveness of our efforts - in the short and long run.

To ensure our activities are relevant and impactful, we employ analytical tools and maintain a continuous feedback loop with our stakeholders:

Output
Direct activities and concrete events.

Indicators:
e.g. number of participants in events, training courses and programmes, diffusion and use of our resources.

Outcome
Medium-term effects of our initiatives on our stakeholders.

Indicators:
e.g. observable changes in the knowledge, skills or behaviour of stakeholders.

Impact
Long-term changes at system level.

Indicators:
e.g. progress in the development and application of trustworthy AI in the innovation ecosystem.

1. PESTLE Analysis
Our PESTLE framework allows us to systematically analyze external factors - political, economic, social, technological, legal, and environmental - that influence our strategic priorities. By integrating these insights into our planning processes, we ensure our activities address the most pressing needs and anticipate future challenges.

2. Stakeholder Engagement
Regular interactions with our stakeholders provide invaluable insights into emerging needs and expectations.

3. Impact Metrics and Reporting
To ensure that our work remains aligned with our vision and mission, we utilize a structured approach to measure and communicate our impact. Building on our existing reporting framework, we are evolving towards a more integrated and impact-oriented structure, incorporating quantitative and qualitative indicators across three levels:

- **Outputs**: Measuring direct activities and tangible results, such as the number of participants reached through events, training, and programs, or the dissemination and usage of our resources, including downloads and media outreach.

- **Outcomes**: Evaluating the intermediate effects of our initiatives, such as changes in stakeholder knowledge, capabilities, or behavior that result from our interventions.
- **Impact**: Assessing the long-term changes regarding trustworthy AI in the AI innovation ecosystem and society at large that are driven by our efforts.

This evolving framework allows us to systematically capture the value of our activities. By embedding this process into our organizational structure, we create a foundation for continuous improvement and alignment with our strategic priorities.

4. OKR (Murakamy Approach)
The OKR approach supports us to continuously measure the outcome of our activities on a quarterly basis and adjust them where necessary to achieve meaningful results that are aligned with our impact goals.
For that we set clear objectives (O) and associated key results (KR) across the entire organisation.

Impressum

A joint
initiative

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