

# The AI Journey

## ARTIFICIAL INTELLIGENCE

will fundamentally transform industries and business models. It is opening up completely new problem classes to being solved by machines. To start adapting to this changing competitive environment, companies need to act now.

## THE STATE OF APPLICATION

is still early as a lot of companies struggle with AI adoption in manifold ways. Topics range from the lack of talent over unclear perspectives on potential use cases for AI in the own organization to inappropriate infrastructure and tooling and shortcomings related to AI development processes.

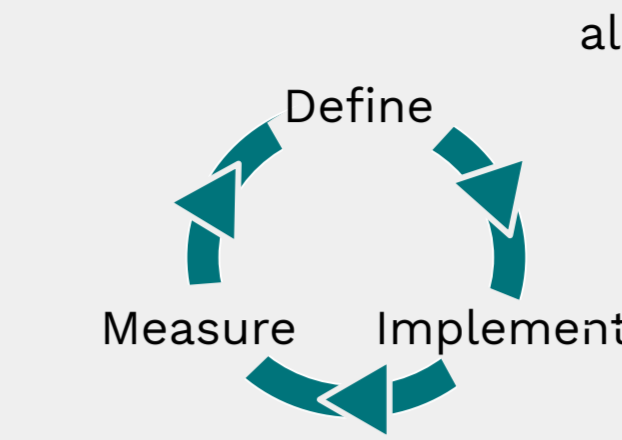
## THE JOURNEY

reflects how we as appliedAI and its partner network think about AI adoption. Based on the expertise of 30+ large German and international corporations, we have collected more than 120 challenges that companies typically face along their journey towards AI maturity and that we jointly work on as the appliedAI Initiative.

## THE GOAL

of making the journey available is to help you guide your way towards successful AI adoption. We hope it is a valuable tool that - while not all challenges may be relevant for you - still highlights the one or the other potential pitfall along the way. We heavily suggest it as a proven framework to guide the development and implementation of your own AI strategy.

## HOW WE WORK



along this journey with our partners is guided by a continuous cycle of defining goals, implementing them and measuring success. To make progress along the AI journey measurable, appliedAI has developed an aligned maturity assessment tool for organizations. If you are interested to learn more about your own AI maturity visit <https://appliedAI.de/maturity>

MATURITY LEVELS	1 EXPERIMENTER	2 PRACTITIONER	3 PROFESSIONAL	4 SHAPER
CHALLENGES				
Vision	<ul style="list-style-type: none"> <li>No management backing for AI initiatives</li> <li>Lack of expert knowledge to drive AI vision development</li> <li>Use cases are set as vision</li> <li>What are my competitors doing?</li> <li>Short-term planning makes AI activities look chaotic</li> </ul>	<ul style="list-style-type: none"> <li>Experience from first experiments changes perspective on vision</li> <li>Lacking clear view on what evolves as competitive advantage</li> <li>Multiple visions evolved over time in different divisions</li> </ul>	<ul style="list-style-type: none"> <li>Human centered AI</li> <li>Scaling new AI-based business models</li> <li>Evaluate AI-based horizontal integration potential</li> </ul>	<ul style="list-style-type: none"> <li>Envision and drive the future of own industry</li> <li>Shape regulatory discussion</li> <li>Open solutions to others to build application ecosystem</li> <li>Manage public opinion on own AI activities</li> </ul>
Use Cases	<ul style="list-style-type: none"> <li>Select initial showcase</li> <li>Teams do not want to collaborate with central AI team</li> <li>Customers do not see value of AI-based offerings</li> <li>AI team does not know potential use cases in the company</li> <li>Business units do not support use case ideation</li> <li>AI team and business struggle to assess value of AI use cases</li> </ul>	<ul style="list-style-type: none"> <li>Too many use cases for central AI team to implement</li> <li>Redundant work as teams work on AI w/o alignment</li> <li>Lack of trackability and interest by management</li> <li>Management expects new AI-based business potential</li> </ul>	<ul style="list-style-type: none"> <li>Keep overview of use case pipeline</li> <li>Move from individual use cases to value clusters</li> </ul>	<ul style="list-style-type: none"> <li>Solutions require integration into application ecosystem</li> <li>Identify use cases for technologies that noone else has</li> <li>Build developer tools based on own ecosystem</li> </ul>
Organization	<ul style="list-style-type: none"> <li>Responsible person to centrally steer AI activities is missing</li> <li>Lack of visibility and awareness of different teams working on AI</li> <li>Organization is unaware of AI team offerings/activities</li> <li>Inability to get funding for AI projects</li> </ul>	<ul style="list-style-type: none"> <li>Unclear which AI-related IP can be protected</li> <li>Measuring and reporting the impact of AI use cases</li> <li>Attractive AI use cases touch ethically critical topics</li> <li>Decide on what to do in core team, what in distributed teams</li> </ul>	<ul style="list-style-type: none"> <li>Transition from central to more decentral structure</li> <li>Decentral teams unaware of relevance of IP protection</li> <li>Deployment approach for high-risk AI use cases unclear</li> </ul>	<ul style="list-style-type: none"> <li>Maintain overview in distributed teams</li> <li>Establish developer community outside of own company</li> <li>Keep overview about risk induced by AI applications</li> </ul>
Culture & Talent	<ul style="list-style-type: none"> <li>Required skillsets not available in company</li> <li>No resources to help personnel to become experts</li> <li>Perception of AI as a "techie" topic</li> <li>Getting people to understand why exploration is necessary</li> <li>People fear AI will affect their jobs negatively</li> <li>No know-how on how to hire AI engineers</li> <li>Experts stick to traditional methods and do not trust in AI</li> <li>"Not invented here" syndrome</li> </ul>	<ul style="list-style-type: none"> <li>Company not perceived as attractive employer for AI talent</li> <li>Employees do not see use cases due to lack of tech understanding</li> <li>No awareness of cultural challenges in the organization</li> <li>Research vs. application focus unclear</li> <li>AI employees leaving company after short time</li> <li>Employees are afraid of AI and see it as a threat</li> <li>Experienced software and DevOps engineers required</li> <li>Mixed pool of talents to go beyond PoC difficult to establish</li> </ul>	<ul style="list-style-type: none"> <li>Infuse thinking of AI as "a normal part of every project"</li> <li>Staff not used to work with probabilistic software</li> <li>Create internal "open source" culture for AI code and modules</li> <li>Need for good AIX (UX for AI)</li> </ul>	<ul style="list-style-type: none"> <li>Satisfying "stars" and research community</li> <li>Development of new markets and customer segments</li> <li>Drive public perception of AI in general</li> </ul>
Tech & Data	<ul style="list-style-type: none"> <li>Products not digitized or "connected"</li> <li>People are asking for the "value of data"</li> <li>Missing understanding of ones data (volume &amp; quality)</li> <li>Less data available than initially expected</li> <li>Missing understanding of data governance (Quality, legal aspects)</li> </ul>	<ul style="list-style-type: none"> <li>Shadow IT built for first prototypes hinders scaling</li> <li>Inability to use cloud environments</li> <li>No awareness of tools in the AI space</li> <li>No ML Ops concept developed</li> <li>Lacking visibility of data assets &amp; quality at scale</li> <li>Lacking overall data quality</li> <li>Teams do not know how to access certain data</li> <li>No data-related roles (ownership / stewardship) defined</li> </ul>	<ul style="list-style-type: none"> <li>Serving a large number of BU's efficiently</li> <li>Creation of reliable and scalable data pipelines</li> <li>Make data assets "searchable" or "findable"</li> <li>Limit uncontrolled technology growth</li> <li>Decide on which data to share / pool with external parties</li> <li>Traceability of data dependencies</li> </ul>	<ul style="list-style-type: none"> <li>Open interfaces for external developers</li> <li>Development of own AI tools and infrastructure (incl. HW)</li> <li>Make pre-trained base models available</li> </ul>
Ecosystem	<ul style="list-style-type: none"> <li>Lacks overview of central contact points &amp; information hubs</li> <li>First use case identified but no staff to implement</li> <li>No knowledge of how to setup outsourcing contracts for AI</li> </ul>	<ul style="list-style-type: none"> <li>Wide variety of AI tech domains requires external expertise</li> <li>Sales staff not able to sell AI innovations to customers</li> <li>Long-term technology focus cannot be covered internally</li> </ul>	<ul style="list-style-type: none"> <li>Users are not ready to adopt AI-enabled products or services</li> <li>Drive industry standards and regulation</li> </ul>	<ul style="list-style-type: none"> <li>Build strong lobby on industry or cross-industry level</li> <li>Enable supplier, customers, and partners to follow you</li> </ul>
Execution	<ul style="list-style-type: none"> <li>Requirements engineering for AI projects needed</li> <li>Implement first PoC's</li> <li>No feeling for hardware requirements for use case</li> <li>Data Scientists do not understand the domain sufficiently</li> <li>Project structures do not allow experimentation</li> <li>Use cases developed disconnected from core business</li> </ul>	<ul style="list-style-type: none"> <li>Experimentation and data generation are not reproducible</li> <li>Difficulty to utilize the scarce talent as good as possible</li> <li>lack of usage of standard frameworks</li> <li>Deployment not considered at beginning of AI projects</li> <li>Difficult to move AI talent between projects</li> <li>Use cases stuck at PoC level</li> <li>Redundancies as teams cannot share work conveniently</li> <li>Business units want to develop their cases on their own</li> </ul>	<ul style="list-style-type: none"> <li>Increasing compute requirements du to scale-up</li> <li>Drive standardization of development process across org</li> <li>Data gathering for edge cases requires extensive effort</li> <li>Underestimation of relevance of trustworthy AI</li> <li>Standardization of handover process for AI for operations</li> </ul>	<ul style="list-style-type: none"> <li>Develop and publish new AI development processes and tools</li> <li>Keep risks of experimental approaches low</li> </ul>
KEY STAKE-HOLDERS & THEIR ROLES	<ul style="list-style-type: none"> <li><b>CORE AI TEAM</b> Inspire the organization and steer first attempts of aligning tech- and business perspective.</li> <li><b>MIDDLE MANAGEMENT</b> Gain first understanding of AI potential and actively support vision development and use case ideation.</li> <li><b>BU FOR FIRST SHOWCASE</b> Actively invest resources into first project. Drive culture of openness towards AI</li> <li><b>C-LEVEL MANAGEMENT</b> Provide necessary resources and enable freedom to drive experimentation and learning.</li> </ul>	<ul style="list-style-type: none"> <li><b>CORE AI TEAM</b> Create visibility of AI initiatives and align them. Set up organizational structures and drive governance and standards.</li> <li><b>MIDDLE MANAGEMENT</b> Drive use case ideation at scale. Ensure close collaboration with core AI team to ensure central prioritization of AI use cases.</li> <li><b>IMPLEMENTATION PARTNERS</b> Speed-up implementation while ensuring knowledge transfer during projects.</li> <li><b>IT DEPARTMENT</b> Consolidate infrastructure and tooling requirements. Start building platforms and infrastructure solutions.</li> <li><b>BUSINESS UNITS</b> Infuse ideas to AI initiatives and support core team with domain expertise during development phases.</li> <li><b>C-LEVEL MANAGEMENT</b> Educate themselves about AI to act as role models and lead cultural change.</li> </ul>	<ul style="list-style-type: none"> <li><b>CORE AI TEAM</b> Push responsibilities into decentral teams. Focus and scale core offerings to be provided centrally.</li> <li><b>DECENTRAL AI TEAMS</b> Drive projects while sharing experiences and learnings with central AI and IT team to ensure organizational learning.</li> <li><b>IT DEPARTMENT</b> Drive standardization and deliver AI and data-related infrastructure and platforms at scale. Deliver on AI Ops concept.</li> <li><b>TECH PROVIDERS</b> Strategically chosen technology providers help scale infrastructure and build services for data and model deployment.</li> <li><b>SOFTWARE/FEATURE TEAMS</b> Establish standard approach to integrate ML components into software projects.</li> <li><b>BUSINESS UNITS</b> Take own responsibility for AI solution design, development and monitoring.</li> </ul>	<ul style="list-style-type: none"> <li><b>CORE AI TEAM</b> Focus on optimizing core AI modules and assets that are being used throughout the organization. Push research into feature teams.</li> <li><b>SOFTWARE/FEATURE TEAMS</b> Continuous delivery and improvement of AI-driven products and solutions.</li> <li><b>IT DEPARTMENT</b> Drive development of new platform and infrastructure solutions specialized for internal AI solutions.</li> <li><b>AI RESEARCH TEAM</b> Push boundaries in strategically relevant AI technology fields. Push state-of-the-art research into feature teams.</li> </ul>