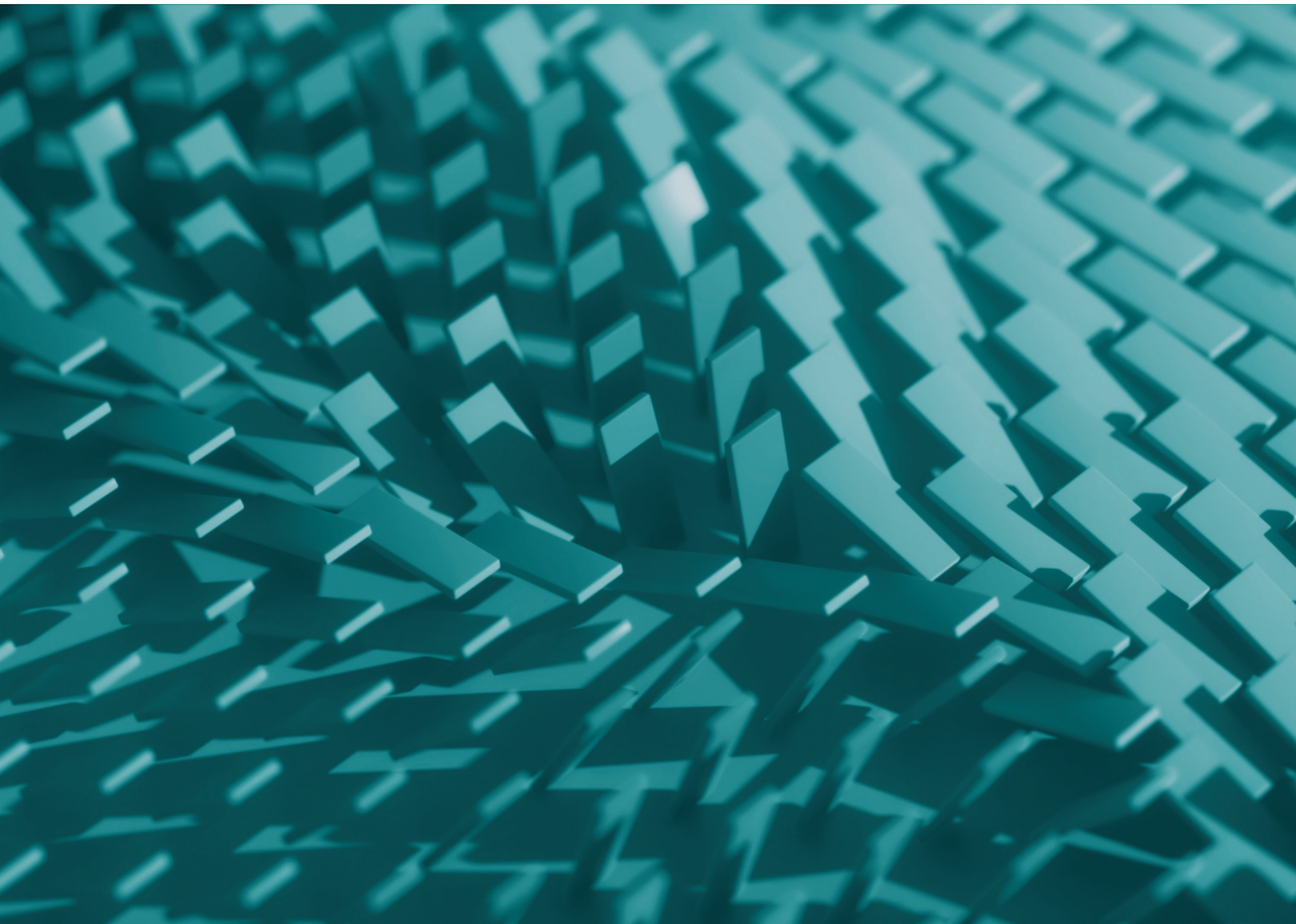
initiative for applied artificial intelligence

Applying AI: Culture, Change, Communication



“The single most critical driver of value from AI is not algorithms, nor technology – it is the human in the equation.”

Shervin Khodabandeh,
BCG

Elements of a comprehensive AI strategy

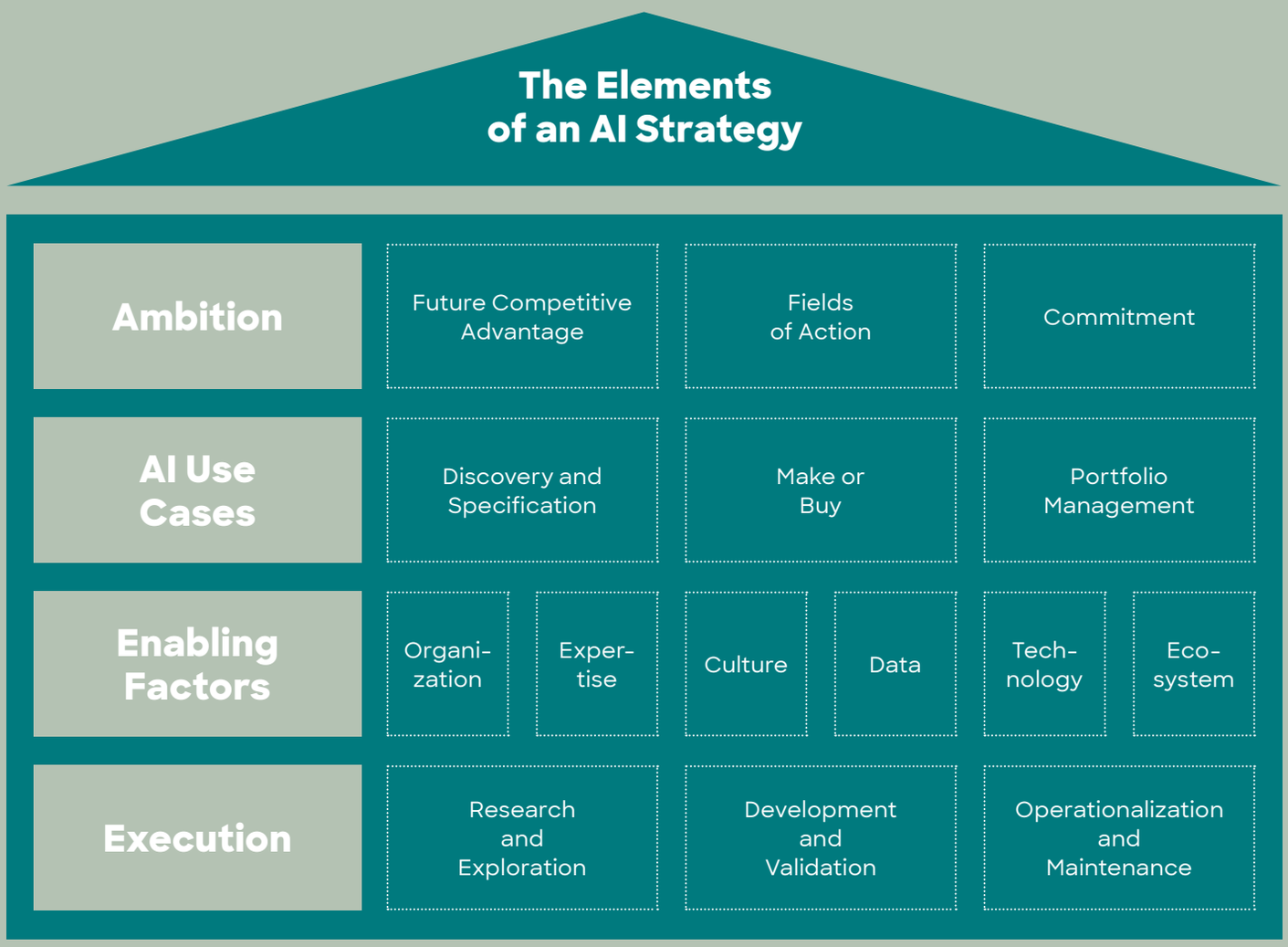
The topics around culture, change, and communication are part of a bigger picture, of course. A comprehensive AI strategy consists of four parts: an AI ambition, a portfolio of AI use cases, the required enabling factors, and a clear strategy for execution.

A company's AI ambition sets the high-level goals of any AI application to be developed or deployed. It includes an understanding of the current position of the company, its competitive position, and industry dynamics, including potential changes to the industry's business model. On this basis, it can be decided where the organization could benefit most from AI - within a specific product or service and / or by improving processes. The ambition needs to be translated into a portfolio of AI use cases. To build this portfolio, you need to identify and prioritize relevant use cases. To execute the use cases, a set of enabling factors is required concerning the organization, the people, the technology, and the AI ecosystem. All of these aspects need to be taken into account when it comes to the development of a comprehensive AI strategy

But to lift the value that AI promises, your company needs to go through a journey to AI maturity. The different elements must be developed in parallel. It does not help if only one element is very well developed, but another is missing. The topic of culture must also be considered in this light: You don't have to change the whole company culture when you take the first steps with AI – but to achieve a high level of maturity and thus real value through AI, the culture dimension must also be addressed.

You can find more information in our report **"Elements of a comprehensive AI strategy"**.

Figure 1: Culture is an important enabling factor for a working AI strategy



Introduction

Today, AI can detect cancer, develop vaccines, and drive cars (well, almost). But then why doesn't everyone use AI? The hurdle is often not the technology and some have already learned this the hard way: A large European insurance company wanted to improve its sales process using AI. It spent many months building an AI tool that helps sales staff with its communication, giving hints of when to change communication styles. The salespeople should use it enthusiastically because it makes the work easier, right? The opposite was the case, no one ever used this system. The employees lacked any incentive to use a new tool and had no trust in it, so the staff rather stayed with known processes.

When a global technology firm with deep expertise in high-tech applications wanted to improve its applications through AI algorithms, the endeavour was stopped in a very early stage of development: When asked for their input on first ideas on how to use AI the domain, experts refused to share their expertise and experience as they felt threatened to lose their power. In the end, the AI team had to give up.

And this challenge also applies to the AI frontrunners: When Google first introduced its AI powered test to identify diabetic retinopathy from an eye scan, it soon learned that a 90 % accuracy in the lab set up is no indication for how good the tool performs in real life. The nurses were introduced to the new technology, but never knew when and how exactly they should apply it. Having a full workday already, the nurses found the new system to be a further stressor and it led to a lot of frustration.[1]

For AI to be successful, close collaboration between AI and humans is indispensable. Even the most advanced AI solutions are without effect if they are not adopted by the users or embraced in the organization. Culture determines the speed at which new directions or strategies, like the use of AI, can take hold. Culture can be seen as "the way we do things around here." The longer an organisation existed, the more embedded this way-of-doing-things is. New demands face an uphill battle against customs, expectations, and habits in the organization.

An organization must answer a set of organizational and cultural questions just as it builds up technical and infrastructure capabilities. Technical changes need social changes within the organization. Ignoring this fact can void the impact of the best experts and world-class tools. While this is also true for many other non-AI tools, there are specific differences with AI. With all the powers that AI brings, it is the change in the organization that determines the embrace and use of the technology. Companies that understand this stand a much better chance of successfully implementing AI technology.

But the opposite is often the case: the agenda of most companies is already "full" with all the challenges that arise from digitisation. However, transformation costs a lot of money, time and attention. So many don't want to "overdo it" with the topic of introducing AI.

And it is not just anecdotal evidence that underlines the importance of the culture for the AI transformation. In a recent study among C-suite executives of Fortune1000 companies, more than 92 % of the respondents identify culture as the biggest hurdle to derive value from AI.[2] Similarly, a survey from Boston Consulting Group (BCG) finds that companies that focus on the human aspect of applying AI are six times more likely to reap benefits of AI.[3]

> "92 % identify culture as the biggest hurdle to derive value from AI"

This report aims to draw attention to this often-neglected "soft" side of applying AI successfully. It further highlights what is special about AI – after all, change is not a new concept – and offers concrete measures on how to address the issues of culture, communication, and change in the context of an AI transformation. In doing so, we rely on our experience from successful approaches to foster AI applications in larger enterprises. To make the topic even more accessible, you can find concrete examples from our partners EnBW and Siemens on how they approach it. However, this can only ever be a first impulse: Every corporate culture is unique and requires a tailored approach. But putting the topic on the agenda is definitely the first right and important.

[1] https://www.technologyreview.com/2020/04/27/1000658/google-medical-ai-accurate-lab-real-life-clinic-covid-diabetes-retina-disease/
[2] https://hbr.org/2021/02/why-is-it-so-hard-to-become-a-data-driven-company
[3] https://www.bcg.com/de-de/press/20october2020-study-finds-significant-financial-benefits-with-ai

Three unique challenges when programs write themselves

While AI is a new technology for many companies, transformations and the associated need for change approaches are not. Many of the challenges related to change are the same as for other technology-driven transformations. Therefore, many of the existing general change approaches are also applicable to AI. But there are distinctive characteristics of AI that require special consideration:

Impacting jobs at scale

Changes that come with AI are as profound turning points as the introduction of book printing, the steam engine, or electricity. These technical breakthroughs empowered people to do things easier, have more reach and gain efficiencies in their field. Industries were created, new jobs created, and laws crafted. And along with it came the death of many traditional jobs, no one remembers the lamplighter; the failure of businesses; and social upheaval.

Many see AI in a similar epochal shift. AI allows the discovery of patterns previously not accessible, the automation of cognitive labour previously bound to human workers, and an unprecedented acceleration of many processes. All this will have an immense impact on how organizations operate and the shape of many jobs. McKinsey estimates that over the next 10 years about 35% of jobs will be dislocated and employees will have to reskill. This can generate massive amounts of fear if not managed well.

The pattern recognition powers of AI encroach on humans' place in the workplace. Once an AI system can work with input (data) and derive rules for running a process, it will push people out of decision roles. Especially repetitive and predictable tasks will be candidates for automation. In practice, many teams are happy when some of their work is taken from their to-do list, especially repetitive tasks are gladly given to a system that does these tasks reliably, and maybe even better.

This shift introduces a new dynamic in the workplace though. Andrew Ng, former head of AI at Google and Baidu, summarises the challenge as follows: "The challenge that faces us is that, when the U.S. transformed from an agricultural to a manufacturing and services economy, we had people move from one routine task, such as farming, to a different routine task, such as manufacturing or working call service centres. A large fraction of the population has made that transition, so they've been okay, they've found other jobs. But many of their jobs are still routine and repetitive. The challenge that faces us is to find a way to scalably teach people to do non-routine, non-repetitive work.

Our education system, historically, has not been good at doing that at scale. The top universities are good at doing that for a relatively modest fraction of the population. But a lot of our population ends up doing work that is important but also routine and repetitive."[4] Securing employment even when machines take over a large part of routine tasks is one of the key challenges of AI to organizations and society.

The price tag of eating away at routine tasks comes with a constant demand to reskill the workforce. Our educational system is geared toward a validated body of knowledge and established practices. This is inevitably backward looking. The time-lag of knowledge and expertise poses a real problem for a dynamic workplace. New job roles are constantly emerging, new emphasis in jobs is a given. It seems that meta-skills like creativity, discovery, self-organization, and target selection become more important.

Here are four questions that business and people leaders need to ponder: How do we empower our employees to move into new job categories? How do we promote self-management and these meta skills? How do we avoid overheating the organization through too much change and instability? How do we build a sense of community and belonging in these times?

[4] Inside The Mind That Built Google Brain: On Life, Creativity, And Failure, 05/13/2015

Working with uncertainty

There are also technical reasons why AI is different: While traditional computing uses deductive logic; that is, it follows 'instructions' (sometimes billions of them), Machine Learning (ML, which we will focus on here), the most important subfield of AI, is all about inductive learning. It is a machine-based system that takes in data, pursues a goal, performs a "best-guess" prediction/action, and receives some form of feedback, gradually improving its predictions/actions over many such cycles. Real-world systems that apply AI are typically a combination of both types of learning.

Thus, AI systems development requires an extended phase of exploration. Outcomes are not certain and the AI systems are driven by many parameters, dependent on data and technically complex. The operation model needs room for exploration beyond execution.

Even agile ideas are not help enough. In agile development, there is an emphasis on frequent customer involvement. Features and value propositions need to be tested with real customers. The exploration happens on the value-proposition and usability level. When the customer points in a direction, the engineering is focused on executing these priorities. In AI, this shifts. Not only is the value proposition a search for a solution for the customer, also the engineering is exploring the possibilities and options. Both levels play at the same time. This makes for a highly dynamic search process with unclear outcomes and timelines.

Exploration comes with two price tags for organisations: management needs a different approach and the culture needs to support exploration.

Current management systems of planning, rewarding, and risk-assessment don't translate well to AI. Christopher Columbus could not be managed by Management by Objectives and incentivized for the discovery of new possibilities. How to scope targets for exploratory value-creation needs to be considered. Management needs to learn the basics of AI to understand what is going on in projects.

Many companies had a steady diet of carrots and sticks. Bonuses, promotions, firings – all nurtured a culture of performance and reward-orientation. One side effect is a fear-based culture resulting in politics and hierarchies-based protection attitudes. Exploration will not go well in those settings. Teams need a solid dose of trust, especially if they are cross-functional and diverse. Psychological safety needs to be introduced in many organizations and managers do well to support that. Especially managers will have a big learning task that will be more challenging to some of them than anything they learned before. They will have to learn to trust in their employees and trust in the processes. This will be incredibly different to what most managers experienced during their daily work lives in their past. So, they have to go beyond their own experiences without knowing what they can expect. Without buy-in and contribution from different parts of the business, AI will not deliver on its potential.

Decision making beyond-human capabilities

AI is a master pattern-recognition system. Based on data availability, AI can show relations and dependencies that were previously simply not accessible. In late 2020, DeepMind's AlphaFold raised headlines around the world. A major challenge in biology for the past decades – predicting the shape that proteins fold into – has been solved by the DeepMind team, which is expected to open up many new opportunities in various scientific fields, including the development of new medicines.

Even on humbler level, decision making in organizations is often done on a "data-inspired" basis, rather than with the rigor of a complete data set and good understanding of dependencies. Many production plants are run by data gathered in Excel, looked over by experts who add their share of experience and gut feeling. AI allows better control of many processes than "manual" control by experts and is already demonstrating these capabilities e.g., for controlling data centres and gas turbines.

This discovery of new insights and better value creation comes with a price tag. The systems become more complex and introduce the need for new technical skills. We see three challenges related to change in this. For one, there is a need for translators between business leaders, IT experts, and data scientists. Failing to build good bridges will severely limit the impact of AI usage. Next, AI initiatives need to be staffed across organizational departments and with a mix of domain experts, programmers, and data scientists. Getting good at teaming with diversity is paramount for the success of AI. Finally, explainers and trust builders are needed. The beyond-human capabilities can lead to questions of how trustworthy an AI system actually is. Many business users will interact with AI systems and often will rely on their direction or automation, so they need a sense of what AI is and what happens inside the black box.

Overcome these (human) obstacles by putting humans at the centre

The obstacles listed above explain why non-technical factors often hold back the success of AI initiatives. Accordingly, a systematic approach is needed to overcome these and only an approach placing the human in the centre will be successful. We suggest a two-fold people approach: On the one hand, the development of AI applications should follow a human-centred approach accompanied by a proper change plan for the implementation. On the other hand, the entire organisation must be enabled.

Build your AI application with the people in focus

Human-centred AI does for AI what agile did for software development, you move from tech-centred to user-centred development. This ensures that AI programs do not feel like technology but behave and feel supportive and safe. There are great resources available (https://hai.stanford.edu/ or https://human-centered.ai/ or https://pair.withgoogle.com/guidebook/chapters) that provide valuable insight and guidance.

In order to support AI implementation with suitable change measures that lead to its correct usage, considering the following aspects is advised: First, processes that are affected by the AI application need to be adapted so that overall procedures make sense. Second, personnel working with the AI application need to be provided with training on understanding and using it well.

Third, correct usage has to be incentivized and managed. This third point might be the least obvious, especially for decision makers who are completely convinced of a particular solution. As mentioned in one of the examples above, this can be a make-or-break criterion though.

Empower your organization

The trick in getting AI used in your business is in empowering your organization. As mentioned above, success in the past may actually stand in the way of your use of AI. These five main steps can empower you to move forward: help people understand the direction, change management processes, generate momentum, build skills, and setting up the right org structure.

Lay out the direction – your leaders and employees need some direction as to where you are going and what it means for the organization. While this might not be clear from day one, it is important to help people understand the picture. This is more than a vision statement. The people in the organization need a mental picture of where they are going. They need to understand the rationale and embrace the why. Tools are never the problem. Most problems arise from a lack of understanding. This new emphasis on discovery and creativity, cross-functional collaboration, and data-driven business needs broad embrace. Without it we often find a lack of buy-in and good decision making.

Change processes – most management processes are optimized for a Tayloristic system with some sense of stability and predictability. Since AI deals in exploration space, you need to change how budgets are allocated and renewed. Rewards cannot be given on the same KPIs such as milestones or revenue, etc. They need to be shifted to innovation and exploration measures. You need to set up checkpoints along the discovery phase to assess and guide the AI developments of the organization.

Generate momentum – there is a big difference between theoretical change and the practice of it. This is mostly overlooked. Many organizations had many waves of changes. Promising technologies and techniques came – and not all of them delivered on their promise. So, organizations are in a wait-and-see attitude, becoming sceptical over time. Introducing AI needs to look this fact in the eye. People differ in their openness to change and they don't change all at once. The best answer is to build momentum by focusing on easy early success. Then, communicate well and help people see a path. If things are drawn out or come to a standstill, they are even tougher to see through. In most changes, the problem is not tech or people – it is the lack of momentum.

Build skills – understanding of the general working of AI and its unique demands will be a bottleneck to any scaling effort. The best way to learn is through practical cases and internal champions. Therefore, a learning approach needs to be in place. For management, this understanding will help to guide and decide on this different approach of value creation. Many AI pioneers have commented on the need for "translators" in organizations that can bring AI, IT, and domain experts and leaders together. Only through good understanding and enabling function will a scaling happen across the organization. "AI Literacy" is needed to effectively communicate about and decide on AI.

Figure 2: AI Applications with people in focus

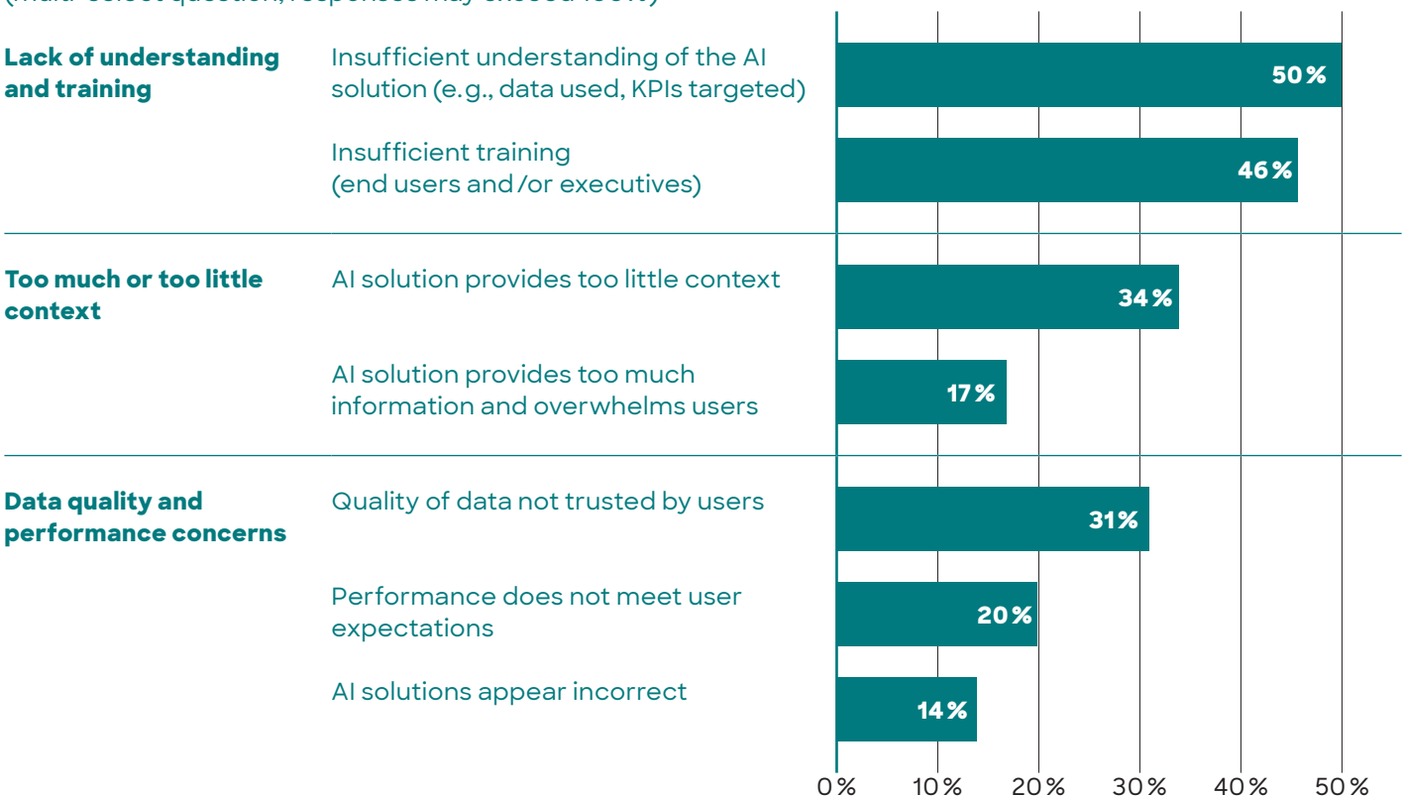
Build your AI application with the people in focus	Empower your organization
Build human-centered AI	Lay out the direction
Support AI implementation with suitable change measures • Adapt processes • Provide trainings • Incentivize and manage	Change processes
	Generate momentum
	Build skills
	Setting up the right org structure

Setting up the right org structure – While setting up the organisational structure is a separate issue, it is clear that the above measures cannot work without the right organizational setting. There is certainly no one-size-fits-all solution, but certain best practices should be considered: The right balance between central coordination and decentralized ownership is needed. A hybrid model can be an efficient approach, where certain functions and expertise are bundled centrally while strong links to decentralized units and the rest of the organization are maintained. Furthermore, the right governance structures and in particular a broad commitment from an AI-educated C-Level is needed.

Creating trust in AI applications

The importance of the aforementioned aspects is reconfirmed by a recent survey by MIT Sloan Management Review and BCG[5] that investigated why end users mistrust AI. First, insufficient understanding of the AI solution (named by 50 % of all respondents) and insufficient training (46 %) were mentioned as the main obstacles. Second, also the system design determines the trust in AI. Notably, it is important to find the right balance between providing enough context, but not overwhelm the user with too much information. Thirdly, the overall performance as expected by the user and the confidence in the underlying data also impacts trust in AI.

Figure 3: Reasons why end users mistrust AI solutions
(multi-select question; responses may exceed 100 %)



[5] S. Ransbotham, F. Candelon, D. Kiron, B. LaFountain, and S. Khodabandeh, "The Cultural Benefits of Artificial Intelligence in the Enterprise," MIT Sloan Management Review and Boston Consulting Group, November 2021.

Case study: AI change at EnBW

When the energy company EnBW set out to bring AI into the business, it was clear that it would not work without measures to bring the company's entire workforce with it.

Transparent communication around AI

In order to create trust in AI and specifically at EnBW, we decided to be as transparent as possible about activities and underlying ideas. As a first measure, we formulated our core beliefs on AI at EnBW in a position paper that can be accessed by the whole company. In this paper, we described issues like the role of colleagues (augmentation vs. automation), research vs. implementation, or the importance of an ecosystem. Everybody is invited to challenge these beliefs, which helps us to further develop them. One further measure to increase transparency has been the establishment of an intranet AI landing page. Here we offer FAQs on AI at EnBW (including where to get support), outline all initiatives including contacts, and curate internal as well as external trainings. We already received very good feedback on the overview of existing AI projects, which gives our colleagues the feeling that AI is relevant to everybody and not restricted to an exclusive circle. A further simple-but-important measure for increasing acceptance of AI is spreading the message that the way to an AI solution is not straightforward but rather requires an experimental approach. Thus, the time and money necessary for validating an AI use case needs to be considered as venture capital rather than an investment with clear returns. Similarly, like a venture capitalist invests in a start-up without knowing the clear outcome after a couple of years, ideas requiring AI should be pursued if everybody believes in it, motivation is high and a comprehensible guess on the monetary impact exists.

Keynote speeches, showcases, and success stories as part of internal roadshow

Anxiety is often prevalent in the group of employees where no or only little knowledge exists. Following Marie Curie's famous quote "Nothing in life is to be feared, it is only to be understood," we at EnBW have done a roadshow for all teams who were interested in getting to know about AI and EnBW's activities in this field. However, this roadshow was initiated rather accidently by a team that asked our AI CoE whether someone may join their jour fixe and explain what AI is. As the word spread that we offer such a format, many requests reached us and the roadshow was born.
Two factors in those sessions clearly reduced anxiety: First, demystifying the buzz word AI and, second, giving the opportunity to ask questions and thus getting the feeling to be involved. Sometimes even enthusiasm could be created, and colleagues came up with first use-case ideas.

As one further measure, an internal introductory AI training is offered where the basics of AI are taught and are enriched by detailed company-specific examples. Compared to general online trainings, our trainings give us the opportunity to get in touch with colleagues who might have questions or reservations regarding AI.

Staff empowerment: Tailored training programs and community building

When AI is on the agenda of a company's leadership, it usually gives the employees the support to work on associated projects

intensively. We at EnBW create leadership's awareness by offering training for people being responsible for a team, product, or service. Here we go into detail on the opportunities and requirements of AI. The learning objective of this training is that the participants should understand the potential role of AI in their environment. This training can be augmented by specific ideation sessions or by an in-depth workshop determining the AI strategy for a particular department or product.

As outlined below, we've identified and trained a number of AI ambassadors at EnBW. Several (middle and upper) managers volunteered for this role, which again increases deep AI knowledge in the leadership.
One further measure is that our board (sometimes together with the workers' council) has visitied other companies that have adopted AI even more than us in order to learn from their experience. The gained insights are then used as a realistic benchmark when setting our ambition in the field of digitalization in general and AI in particular.

Enabling our colleagues to be aware of AI's potential can be fostered by two factors: Training and knowledge exchange. We offer an internal training that goes deep into the methodology but focuses on the concepts behind AI. Our belief is that you don't have to be a data scientist in order to fully understand the potential of AI. The learning objective is that our colleagues understand when applying AI makes sense and what the prerequisites (especially with regard to data) are. Providing examples from EnBW together with lessons learned gives our colleagues a better understanding than less concrete examples from other industries.

In 2019, we established the role of an AI ambassador. The motivation for this step was the insight that scaling use case identification cannot happen solely by a central AI CoE. Thus, we identified domain experts from various business units and educated them in AI. By means of the knowledge gained in the trainings (provided by appliedAI) our colleagues can explore their part of the organization to find out where AI can support their business. Further, since all ambassadors are organized in a community of practice that is led by our AI CoE, knowledge exchange is assured and help for scoping cases and validating them is centrally provided. Further we have lifted this community to the next level by building interdivisional teams who work on AI topics which need to be addressed on an enterprise level such as regulation or ethics.

We at EnBW foster knowledge exchange in two ways: a community for practitioners and a virtual platform for everybody. Since we are organized in a hybrid way (central CoE and decentral data science teams), we have the strong need for connecting all practitioners at EnBW which is a challenge even for a company with only 24.000 employees. Nonetheless, we hosted an internal AI Day in 2020 that attracted people from more than 50 teams of EnBW. By that the number of participants quadrupled compared to last year. In 2021, we even organized an internal "AI Week" with more than 500 participants. This trend shows the need of our practitioners to share their ideas. Our community building was accompanied by a certain level of branding, yielding a logo (EnBW.AI) that is used on slides, documents, and even apparel.
In addition to our community of practice, we utilize our AI landing page to share knowledge on AI. Everybody is invited to provide details on developed or used AI solutions and thus spread relevant information across the company.

Getting practical: Empowering your organization in three steps

Figure 5: The Change Cycle

Move on when...
we have a plan to engage various groups at different times with messages and actions tailored to them

Move on when...
a learning session with the project team and business owners was held and adjustments are identified

Move on when...
three months have passed (or milestones were reached)

In the following, we would like to roughly outline for you a structured, iterative approach to transform your organization's mindset toward an AI culture. The basis of the approach is the change cycle consisting of an orientation, action, and reflection phase (figure 5).

Orientation

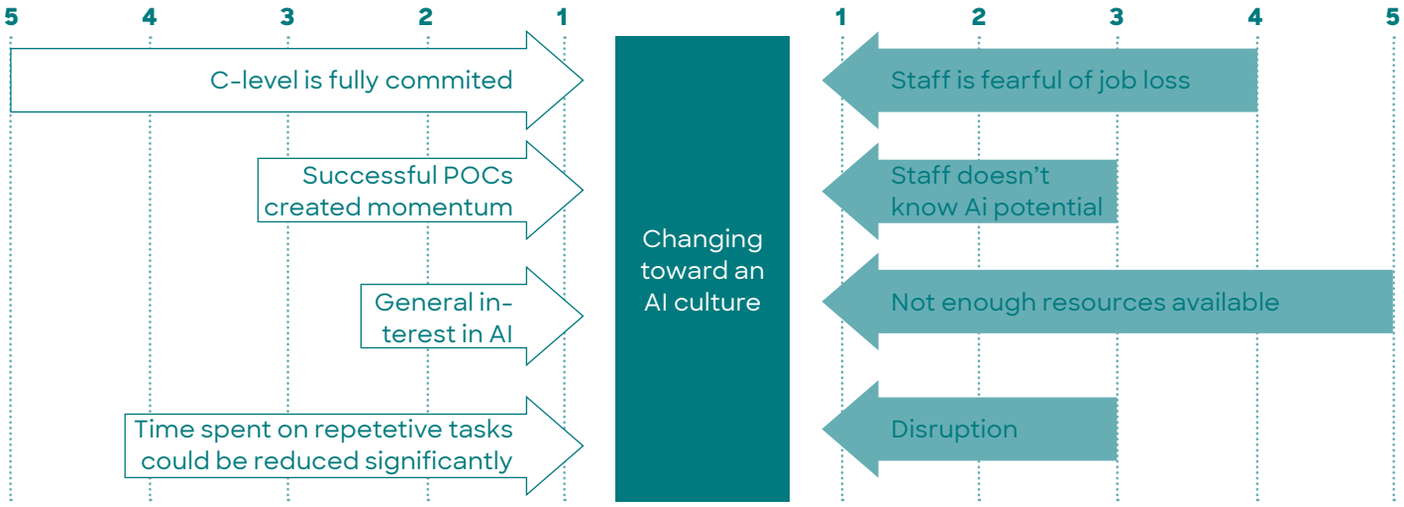
To initiate the change of an organization along an AI Journey, good groundwork is helpful. The leadership should state their ambitions and rationale. Data on the current AI maturity level can be collected, for example, by using the applied AI Maturity Assessment Tool (MAT). The results give insights on challenges that are being faced and need to be addressed in order to reach the next maturity level. Organizations don't change all at once, but people have their own view of what AI means and how they play along. Therefore, the strengths and assets of a department play a role along with the openness to embracing AI. Within a force field analysis workshop with a selected team of participants, supporting as well as opposing forces are being analyzed to increase awareness of them (figure 6).

Based on direction, readiness level, openness to change, and forces at play, a change plan can be drawn up. This needs to be worked out: do we start with selected pilots and scale slowly and steadily, or do we go for a large transformation early on? Do we push the organization to adopt AI, or do we build on the pull of needs and wants from various teams? This answers the key questions in transformation: where do we start? And how do we plan to multiply and scale?

Action

Once you move to transform your organization, a stakeholder map can be created to provide a structured overview of all sensible change and communi-

Figure 6: Example of a force field analysis workshop result[6]



cation items for these user groups and gives a basis of discussion to prioritize them and finally place them along the journey. It is imperative to clarify ownership for the key building blocks mentioned above:

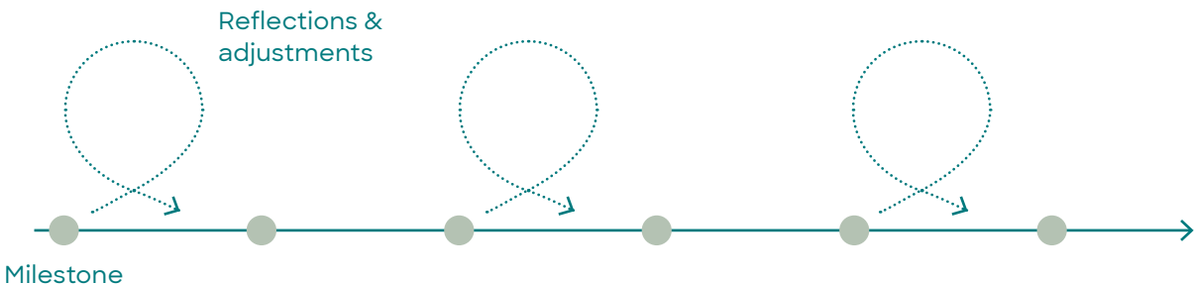
- Lay out direction – Who spreads the story and refines it as the journey evolves? How do we check for understanding and buy-in of employees?
- Change processes – How do we change our management process to support the AI journey? Who monitors this, who drives improvements, who decides?
- Generate momentum – Who owns communication of progress and success? How is management involved in this?
- Build skills – How do we ensure great training for employees? Who will act as multipliers in the organization? How do we cover the translation needs in teams?

In the pilot stages, enough resourcing and attention by management is needed. Good project management should be in place to track execution, capture lessons learned, and drive the evolution of the programme. When going through the AI transformation, a fixed itinerary or a set of stages to be followed for successful change should be avoided. Rather, it is supposed to be an iterative process.

Reflection

After a pilot phase or scaling in a business unit, regular reflections with key actors and management should be instituted. It is crucial for ongoing agile learning in an iterative change cycle, and occurs throughout the change journey. These adjustments in the process and approaches is what the MIT study points out as utterly crucial for winning with AI: "Only when organizations add the ability to learn with AI do significant benefits become likely." As you are changing many aspects of your business (decision making, management processes, value creation), shifts in the approach to transformation are to be expected. Some things will work, new needs will arise, some unforeseen roadblocks might come up.

Figure 7: The reflection process



[6] adopted from Richard Badham (forthcoming), Ironies of Organizational Change: An Introduction to Managing and Leading Change, Edward Elgar, London.

The Siemens AI lab as facilitator of change

Fostering an AI-supportive culture in established organizations with their implicit routines and proven processes is often demanding. One way to overcome these cultural hurdles can be to establish a new entity, as our partner Siemens did with the AI Lab. Founded in 2017, the Munich-based Siemens AI Lab aims to ease co-creation on AI within the company and with customers, by running "orientation workshops" to identify the most promising AI use cases, and "acceleration projects", one-week sprints to technically validate AI use case ideas in early Proof of Concepts. So, let us hear their view on "Culture, Change and Communication"!

Driving culture change is instrumental in times of digital disruption

At the AI Lab, we are convinced that „culture eats strategy for breakfast". This quote by Peter Drucker has retained its validity – even more in the realms of digital innovation, where intrinsic motivation, entrepreneurial thinking and the unleashed power of focused creativity are the decisive factors for speed and success – and for that unbiased view on disruptive trends and opportunities. These aspects are rare and volatile goods - and require not only the expertise of highly skilled professionals, but also a surrounding of empowerment and trust where they can unfold their full potential.

Creating any kind of culture change relies on teamwork, a leadership approach must include the strengthening of positive examples, so-called lighthouses of culture, that act as a visible role model for others. At big corporations like Siemens, quite a few lighthouses are needed to drive a significant cultural shift, and it is a first (yet potentially biased) observation that many of these Siemens-internal start-ups, labs or communities are emerging at first in the digital arena. In the following, we will report from our own home turf, the Siemens AI Lab, which is one exemplary change agent out of an increasing number of units that explore new ways of working and innovating within the grown laws of an established corporation.

Here, at the AI Lab, we have identified a series of levers that can foster the emergence of such an AI-supportive innovation culture that allows for identifying, unfolding and scaling the huge potential of Industrial AI.

Interactive communication formats are key to generate AI literacy

Communication and culture are two sides of the same coin. Before starting with any innovation activity like identifying the most promising AI use case in an orientation workshop, a lightweight training module (of less than 1 hour) helps to avoid later misconceptions and unrealistic expectations of potential AI applications. Literacy in functionally diverse teams between AI experts and domain experts has to be reciprocal: While colleagues from Business Units or Siemens customers are eager to learn the basics of AI, our AI experts have to get the gist of the business pain points before exploring new opportunities at this very intersection.

Yet, beyond the inner dynamics of an innovation team, our communication efforts focus on sharing use cases and the knowledge about technology assets in an interactive way within the whole company. In 2021, we set up a "topic of the month" series, containing 8 episodes of "Industrial AI" that turned to be a well-received, internal interaction format (with more than 1000 unique users) and complemented all the existing AI training ele-

ments by providing real-world examples of AI at Siemens. The corporate power of creativity to come up with new AI application ideas can be unleashed once a broad level of relevant knowledge among the innovation community is created.

Events like our (pre-pandemic) AI Lab Summits with internal and external stakeholders, or quarterly topic-specific meetups help to carry the message to the outside world and invite to use this as a starting point for subsequent interaction. In addition, project teams that get the opportunity to pitch their insights and results on an AI Lab stage in front of top management (and thus skipping several layers of hierarchy) have always been highly motivated to shape their messages in a compelling manner.

All these communication activities are reinforcing both the flow of best practices and the emergence of an innovation culture with new formats of interaction and exploration. With the right purpose in mind, this dynamic can be channeled.

Purpose centricity allows to keep the focus and attract the right talents

Traditionally, product innovation roadmaps used to be built around stable systems of KPIs. Siemens and its competitors spent decades in industrial horseraces, with annual hand-overs of the current world record, e.g. on who is building the most efficient gas turbine. Incremental improvements through material or design adaptions made the difference, as they scaled across many physical products and paid off in a world of well-known KPIs.

In today's digital world the innovation option space has expanded massively. The art of strategy now consists in defining, eventually refining, and validating what the goal of a project is and how to measure its success, rather than sticking to a pre-defined execution path. This implies that the power of taking strategical decisions is needed on all levels within the organization, rather than just on management level. The leadership task consists in providing a vision with a joint purpose that is clear to everyone. Here, the central notion of sustainability and related innovation activities combine both financial goals – since energy- and resource-efficient solutions constitute strong future business opportunities – and leadership goals – since visibly working on sustainability challenges proves beneficial when acquiring new talents and retaining top performers.
As AI comes with a series of ambiguities, we have been exploring topics like "Responsible AI" (focusing on the trustworthy implementation of AI solutions), "Sustainable AI" (focusing on the SDG impact of Industrial AI) or "AI & the future of work" (focusing on implications for us humans in a world of omnipresent AI), in order to bring some light into its polarizing aspects and the corresponding Siemens position.

Delegating autonomy, driving agility and admitting that we are all humans

This is why we have started to work in a role-based system ("holacracy"), where leaders delegate decision autonomy rather than task execution in a controlled way, i.e. within clearly defined roles and their associated role purpose. Many of these > 60 roles at the AI Lab are taken over by working students. This increases our efficiency (e.g. when student process managers decide on the right process to implement their accounted pipeline), our adaptability (e.g. when a sudden pandemic hits the essence of our location-centric operations and our communications lead drafts an updated communication strategy within days), and our employer attractiveness to talents who increasingly demand this new kind of working environment to develop and act on their intrinsic motivation and intrapreneurial skills. They perceive this level of trust as an acknowledgement of their competence, while still retaining flexibility regarding the level of autonomy they want to work at.

One additional working principle is the clear focus on users and customers with their specific needs and pains. Our goal is to explore solutions that start with addressing these pain points. Emerging first in software development, agile work modes like (Value Proposition) Design Thinking, Scrum and others also are increasingly entering the innovation space. Making use of Kanban-based management tools has become a standard also

at the AI Lab even beyond specific innovation projects, e.g. in managing project, event or communication pipelines.

These approaches of holacracy and agility partly captivate through their efficiency because they provide a system where clear and focused communication as well as transparency of progress drive the "flow" of working. Yet, a lot would be missing (and would render these tools unsustainable) if they were not consistently paired with moments where we take the time to focus on us being humans, be it in daily check-ins where we talk about emotions and fears, or regular "retrospectives" and offsites that help us to build trust and resilience as a team. "Mindfulness" is still an area that has to be trained on individual and on team level, and has never been as important as during these times of crisis.

Open Innovation is instrumental to gain speed and efficiency

Being used to sharing personal things within the team also contributes to getting closer to a "culture of radical honesty" with frequent, open and respectful feedback that directly pays into innovation success. Too many late-stage failures could have been avoided if projects teams in their early phases would have been challenged as openly as we'd probably tell a good friend that something is wrong. Yet, the right formats might help to facilitate this attitude. At the end of an intense one-week hackathon sprint, it is much easier to admit to have generated tangible proof that a certain hypothesis could not be validated, and that we should focus our resources somewhere else. At the same time, pitch sessions where this openness is also acknowledged from management side help to foster this culture of failure which is necessary for the next level of innovation effectiveness. The same is true when we cross the company border:

Looking outbound, with these new innovation paradigms of increased levels of speed and permanently changing contexts, it is of utmost importance to foster Open Innovation and learn to leverage the knowledge, skills and attitudes of external contributors. At Siemens, this is driven centrally by a passionate team of change agents and program managers with whom we have run several Open Innovation activities at the AI Lab, like an "Intrapreneurs' Bootcamp on AI" or a large-scale "Technology for Purpose Campaign". Adding our annual hackathons to this, we have experienced that exploring Open Innovation approaches has not only a direct impact towards solving the respective innovation challenges, but also addresses the demand for a continuously learning organization to interact with its innovation ecosystems in more dynamic and tailored ways.

Culture Change and network of lighthouses

We are well aware that in order to unfold a maximum change effect, it is important to stay close, yet not too close to our mothership, whether speaking in geographic terms (in a co-working location, within 15 minutes walking distance from Siemens Headquarters), in an organizational sense (embedded in Siemens' company core technology field of "Data Analytics & AI" with 250 experts across the globe researching on Industrial AI) or in terms of operations (provided with some, but not abundant, central budget for our change mandate).

Driving culture change is a long-term mission, and top-down impulses must resonate across the organization in order to really move the needle. This is why we're happy to share our conviction with many other players in the Siemens universe, in a "network of lighthouses". Just like them, we are constantly searching for projects and activities that, while falling within our technological scope of industrial AI, also have the potential to bring about some cultural change effects to the rest of the organization. We believe that this is our core contribution to Siemens. Because at the end of the day, culture eats strategy for breakfast.

“AI is a long and arduous process. Most of the value comes along the way. As you march toward AI, it might take a while, and you will still greatly improve everything you’re working on. And if you do get there, AI improves almost everything it touches once you’re ready.”

Josh Cogan,
Google Engineer

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Contributors

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About appliedAI

appliedAI is Europe’s largest initiative for the application of cutting edge AI. Our vision is to shape the European AI ecosystem as a trusted enabler and innovator. With partners such as NVIDIA, Google, BMW, Siemens, Deutsche Telekom and many more, we have been strengthening and building the next champions in AI since 2018.

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