White Paper — Methods for AI implementation

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Artificial intelligence is becoming increasingly important. It plays a role not only in the everyday life of every human being, but also in almost every company. The overlap between humans and machines is getting more and more fluid, which is why methods from humans for humans are needed to facilitate the implementation of artificial intelligences.

In this research work, possibilities for AI checks, strategies and AI transfers are presented, which can be assigned to small medium-sized companies (SMEs), start-ups and large industries respectively. A selection of three offerings per category has been made. It is structured according to the different types of companies, a description of the implementation and more detailed procedures. The web sources can be found at the respective checks, strategies and transfers. Furthermore, a recommendation can help to form own opinions and make initial considerations.

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1 Introduction

Artificial intelligence (AI) is perceived as the great growth opportunity especially for SMEs. In a survey by the Bundesverband Mittelständische Wirtschaft (German Association of SMEs), just under 70% of respondents from SMEs state that they see a very high benefit in automation through the use of AI[1]. At the same time, there is a risk that German SMEs will be left behind in the wake of international AI developments. This view is shared by 70% of the experts surveyed in the "Artificial Intelligence in SMEs" survey[2] conducted by Mittelstand Digital-Begleitforschung in April 2019. One of the major obstacles in this regard is seen as a lack of expertise or skilled workers[3]. Potentials of AI are recognized, but cannot be implemented across the board. Actually, German SMEs are very strong in their respective disciplines: SMEs occupy the role of so-called hidden champions in many fields. However, relevant AI developments are taking place abroad, especially in the US. In order to avoid further failures in this regard, methods of AI implementation, AI checks, training and continuing education concepts as well as strategy concepts in particular must be widely published and applied.

But AI implementation is not only critical for midsize companies. For other company sizes, including startups and large corporations, AI can also lead to new value creation on a wide variety of levels. In addition to the actual software - AI is ultimately special programming of software - the physical environments in which it is embedded, such as robots or entire production facilities, also play a role. AI ultimately opens up entirely new markets, some with considerable growth potential. In its position paper "Artificial Intelligence," the Association of Bavarian Industry (Vereinigung der Bayerischen Wirtschaft e. V.) cites a study by Fraunhofer according to which global revenues from AI technologies were estimated at (only) $0.64 billion in 2016, but are expected to reach $37 billion in 2025[4]. Based on this potential, SMEs, startups and large corporations need to be informed about AI implementation methods in order to take advantage of corresponding opportunities for themselves. In addition, not all regions have such extensive support programs available as those provided in the Free State of Bavaria by the Bavarian State Ministry of Economic Affairs, Regional Development and Energy[5].

This white paper, created as part of the European Humane AI Net program[6], showcases the various possibilities for AI implementation and categorizes them into the three target groups of SMEs, startups and large corporations. This publication is intended to help companies of all sizes have easier access to AI implementation measures. Further goal is that the initiatives presented here receive the attention they deserve.

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[1] https://gemeinsam-digital.de/app/uploads/2020/07/ki-umfrage_bvwm_gd.pdf, S.13

[2] https://www.mittelstand-digital.de/MD/Redaktion/DE/Publikationen/kuenstliche-intelligenz-im-mittelstand.pdf?__blob=publicationFile&v=5, S. 8

[3] Vgl. ebda, S. 10

[4] https://www.vbw-bayern.de/Redaktion/Frei-zugaengliche-Medien/Abteilungen-GS/Wirtschaftspolitik/2019/Downloads/Position-KI-Januar-2019_kurz_final.pdf, S. 9

[5] https://www.stmwi.bayern.de/service/foerderprogramme

[6] https://www.humane-ai.eu/

1.1 AI-Check for small-medium enterprises

To master the digital transformation, SMEs in particular need support. AI-Checks are very helpful here. They identify the current conditions and detect precise landmarks and weaknesses in the SME. AI-Checks are the first step in identifying the current state of the company's possibilities to implement artificial intelligence. This step is necessary to initiate the best possible development.

1.1.1 "Software Development Check/CCE-Check" by fortiss

This Check is identifying the present software design on its potential to develop the product and reduce costs (Potential evaluation). It also explores previous working methods and development activities for an increase of productivity and less barriers (Retrospective analysis). The *Software Development Check* evaluates and analyses the software design comparing to other organizations and contemporary technologies (Benchmarking).

Method:

A. Mutual conversation: CCE-team explains the exact procedure and supports company in selecting interview participants.
B. Preparation of the interviews: Setting up access for the participants to the platform, where the interviews are conducted online.
C. Conducting the interviews: Participants record their essential daily activities. Only the relevant aspects of each participant are recorded.
D. Completion and online results: The collected information is put into relation and a first automated analysis regarding quality attributes is immediately available online.
E. Workshop at companies site: The results are discussed in a personal workshop, possible potentials are identified and action measures are developed together.

Source: https://cce.fortiss.org/check

Recommendation:

With the help of the CCE Check, small and medium-sized enterprises receive a review and assessment of their software development activities using the development of a software system as an example. The assessment forms a valuable starting point for identifying and building up improvement potentials of techniques and competences based on the current state of the art within a company. By means of interviews, the main activities, their embedding and coordination in the development process and the techniques used that contribute to the development of the software system are recorded. Based on the activities and roles of the participants, only the relevant aspects are considered and collected. These range from requirements management to testing and software deployment. The collected information is correlated and a first automated analysis in terms of software/system quality attributes (e.g. maintainability) and process attributes (e.g. traceability) is immediately available. The individual results of the CCE Check are presented in detail to all participants together with selected managers on site in a half-day workshop and discussed together. Based on the results, potential improvements are identified and prioritized, incentives are created and concrete measures are developed to promote the mastery of software technology and corporate competences.

1.1.2 AI Maturity Check by U-TUM

Based on the expertise of numerous large German and international corporations and organizations, appliedAI has collected more than 120 challenges that companies typically face along their journey towards AI maturity. The goal of making the journey available is to help SMEs guide their way towards AI maturity: "We use it as a proven framework to guide the development and implementation of your own AI strategy."

Methods used in the AI Maturity Check:

A. Systematically assess the companies current position with the 'AI Maturity Assessment': The appliedAI Maturity Assessment is used to assess the status quo of AI adoption in the companies organization they can work against. It is applied in 9 European countries as a standard tool for assessing and benchmarking AI maturity.
B. Define the companies AI-strategy following the proven 'AI strategy house': The AI strategy house serves as a framework for content creation and structure for the AI journey. More details can be found in our whitepaper 'Elements of a comprehensive AI strategy'.
C. Develop the companies roadmap for AI maturity avoiding common challenges: The AI Journey Map gives an overview about the challenges a company typically faces along their AI journey. Different workshop formats build upon a maturity assessment and AI Journey as a toolset to create a working plan for each company to structure their way forward. More information about our AI courses and trainings can be found on the AI trainings page.

Source: https://www.appliedai.de/services

Recommendation:

The appliedAI maturity assessment has established itself as a very good tool for measuring the level on AI in Europe. Since its development it is now being used in more than nine European countries. The Assessment in combination with the proven methodology for journey workshops serves as a basis for identifying the companies' current level but also to create a roadmap of how to advance. It creates a quantitative basis for the status quo and for the expected success.

1.1.3 AI Maturity Tool by VTT Technical Research Centre of Finland LTD

By understanding the level of an organization's AI, the VTT's AI Maturity Tool can be used as a free-of-charge self-assessment web tool, which produces a basic visualization of AI maturity.

Method:

Level of the companies organization's AI: It gives a baseline of the current AI maturity by evaluating the Strategy and Management, Products and Services, Competence and Cooperation, Processes, Data and Technology.

Source: https://ai.digimaturity.vtt.fi

Recommendation:

The compact information gets to the essence of the AI Maturity Tool of VVT. Interested parties might have problems disclosing data (A Sign-Up is needed for further steps).

1.2 AI-Check for Start-ups

Start-ups face naturally the special challenge of launching a business. They are in the starting blocks ready to take off. In this formative stage, artificial intelligences can figure out how competitive the start-up is in comparison to existing companies. Where are the strengths and weaknesses?

1.2.1 AI Readiness Score by Appen

The AI Readiness assessment is designed to level-set an organization in its AI journey, with practical guidance on how to get to the next stage.

Method:

Take this Assessment to:

1. Understand where the AI industry is as a whole on their journey.
2. Learn where the organization stands in comparison to the AI industry benchmark
3. Uncover what steps the organization can take to advance its AI initiatives.

Source: https://appen.com/ai-readiness-score/

Recommendation:

Has not a special start-up -focus, but can be used for start-ups as well.

1.2.2 AI Corporate Assessment (AIRA) by Stallion AI

Stallion AI has developed a proprietary methodology, based on deep experience and aligned with global best practices, to assess the artificial intelligence readiness and software development and deployment processes within any enterprise.

This assessment serves to establish a customized roadmap for future AI projects, applied research initiatives and integration of intelligent solutions. It helps guide executives on how best to adopt an AI and machine learning innovation culture across one or many governments or business units. This is the first step towards AI-driven digital transformation for any large enterprise in the public or private sector.

Source: https://stallion.ai/en/ai-readiness-assessment

Recommendation:

Proprietary methodology comes to play. The Check also has not a special start-up -focus, but can be used for start-ups as well.

1.2.3 Assess your AI maturity by Visium

Visium has developed an assessment designed to help leaders understand the necessary factors that will allow them to successfully prepare for and implement AI solutions.

The assessments process steps to identify AI maturity is based on three main dimensions:

1. Data Governance
2. Innovation Potential
3. Initiative Management

Source: https://www.visium.ch/ai-maturity-assessment

Recommendation:

The test of Visa includes only three minutes. This can potentially lead to an inaccurate and unsatisfactory final result. On the other hand, if the right questions are asked in the three minutes, the result is not necessarily incorrect. Nevertheless, we would take the evaluation of the test with a grain of salt.

1.3 AI-Check for big industries
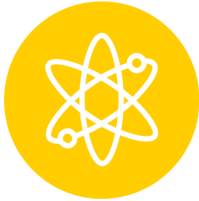
Even big industries need to stay up-to-date when it comes to AI. Even though many big industries are far advanced in implementing artificial intelligence, they should always be adapted and updated to the latest developments in AI but also to the new products, business models and organization of the company.

1.3.1 AI Readiness Assessment by Omina Technologies

The AI Readiness Assessment identifies a competitive strategic AI roadmap. Your current AI maturity is compared to your competitors, followed by a SWOT analysis and the development of a roadmap on how you can strategically exploit AI.

Further procedure:

1. An AI Readiness Assessment enables companies to expand their offering and include new advancements in the field of Artificial Intelligence and Machine Learning.
2. In conjunction with core team members within the company, Omina Technologies identifies key strategic areas where the company could best use new AI technologies and Machine Learning.
3. Following a preliminary meeting with the company, Omina Technologies establishes what information is required to determine the specific needs and opportunities within its portfolio.
4. Omina performs a formal assessment of existing competencies and gives advice on the medium and long-term strategic direction with respect to the integration of AI and ML technologies.

Source: https://ominatechnologies.com/ai-readiness-assessment/

Recommendation:

The AI Readiness Assesment by Omina Technologies also includes fields of machine learning and business development. Their recommended strategies are designed for long-term goals. This holistic approach fuels an even more successful implementation of AI.

1.3.2 AI Readiness Assessment by Fujitsu

The AI experts of Fujitsu discuss the following questions: "How ready are you for AI? What concrete and individual competitive advantages can you realize through AI? What could your "Roadmap to AI" look like?"

Fujitsu's more accurate process is as following:

1. Overall positioning of the own company for the use of AI
2. Kick-off call for interdepartmental analysis
3. As-is analysis according to dimensions, opportunities and risks
4. One-day workshop in which they transfer their experience to your company
5. Personal "Roadmap to AI" with recommendations
6. Results report and results dialogue
7. Agile, goal-oriented cooperation through a structured approach and procedure and moderation
8. Short time frame of only about three weeks

Source:
https://sp.ts.fujitsu.com/dmsp/Publications/public/50928_Kuenstliche_Intelligenz_im_Unternehmen__So_gel
ingt_der_Einstieg.pdf

Recommendation:

Fujitsu focuses on the very individual situation of the customer and is holistically oriented. In the three-week-assessment, they look at six dimensions of AI and evaluate how well the business already is positioned in these dimensions. The more rash visible in the chart, the better it is for the company. Very illustrative!

1.3.3 Understanding your AI maturity with Avanade

Avanade's AI Maturity research was designed to help understand organizations progress against five categories: AI Strategy, AI Talent and Culture, Digital Ethics, Data Supply Chain as well as Analytics and AI Technology and Process.

Process steps:

1. AI strategy for resilience and business results (in uncertain times)
2. Rethink the use of AI technologies and processes to respond
3. Rethink AI strategy to address Digital Ethics (during uncertain times)
4. Rethink Data Supply for resilience and results (in uncertain times)
5. Rethink AI Talent and Culture Agenda/The secret weapon to scale AI for the long-term.

Source: https://www.avanade.com/en/solutions/analytics-and-ai/artificial-intelligence/data-and-ai-maturity/ai-strategy

Recommendation:

In times of Covid 19 pandemic, it is important to adapt to the circumstances. Avanade does this very well by referring to the pandemic again and again. This way, the assignee feels securely supported even in times of uncertainty. Very contemporary!

2.1 AI-Strategy for small-medium enterprises

 Especially educational trainings can be very helpful for building an AI strategy in an SME. They cover the breadth and necessary depth that a strategy can provide. Adapting this individually to the SME is in the hands of the training participants and remains a challenge.

2.1.1 Online Course by University of Leeds

This Postgraduate Certificate pathway provides a strong foundation of AI skills to give you what employers are looking for. You will study two compulsory modules and two optional modules of the Artificial Intelligence Masters and exit with the Postgraduate Certificate award, or continue to complete the full Masters degree.

Participants will acquire the knowledge to influence company strategy and impress employers, helping them to evaluate the risks and opportunities associated with new technologies and market approaches.

Source: https://courses.leeds.ac.uk/d997/artificial-intelligence-postgraduate-certificate

Recommendation:

Only for professionals with previous academic knowledge and some experience in AI topics. Solid mathematical knowledge and a minimum of calculus, algebra and linear fundamentals are required.

2.1.2 AI Strategy Course by Kellogg School of Management

Trusting that Artificial Intelligence can live up to its hype requires companies to become comfortable with advancements such as the cloud and big data. It also requires companies to gain confidence that AI can deliver competitive advantages. This program will lead companies to breakthrough thinking about AI's capabilities, so the company can thrive in the era of AI.

1. Understand the business applications and outcomes that can be achieved with AI.
2. Represent the voice of the business as well as the customer to data scientists and engineers.
3. Craft the companies' AI journey, from strategy and capabilities to execution and organization.
4. Navigate the black box and ethical considerations of Artificial Intelligence to drive responsible AI initiatives.
5. Join a community of like-minded professionals who are successfully deploying AI in their organizations.

Source: https://online.em.kellogg.northwestern.edu/artificial-intelligence?utm_source=Google&utm_medium=c&utm_term=%2Bai%20%2Bcourse&utm_location=9042527&utm_campaign=B-365D_ROW_GG_SE_KAI_AI_P1_Geo1&utm_content=Artificial-Intelligence_Course&gclid=CjwKCAjw9r-DBhB

Recommendation:

This online program is designed to prepare experienced executives, managers, and consultants to implement AI across enterprise functions. It is also an ideal curriculum for investors seeking a deeper understanding of AI.

2.1.3 AI Implications for Business Strategy – MIT Management Executive Education and MIT CSAIL

In this program, participants gain the knowledge and confidence to support the integration of AI into their organization. The outcome will be:

1. A practical grounding in Artificial Intelligence and its business applications, equipping the company with the knowledge and confidence the company needs to transform its organization into an innovative, efficient, and sustainable company of the future.
2. The ability to lead informed, strategic decision-making and augment business performance by integrating key AI management and leadership insights into the way the organization operates.
3. A powerful dual-perspective from two MIT schools – the MIT Sloan School of management and the MIT Computer Science and artificial intelligence Laboratory – offering a sound conceptual understanding of AI technologies through a business lens.

Source: https://executive-education-online.mit.edu/presentations/lp/mit-artificial-intelligence-online-short-course/?ef_id=c:342455541759_d:c_n:g_ti:aud-733905065437:kwd-308165721725_p:_k:%2Bai%20%2Bcourse_m:b_a:61508430205&gclid=CjwKCAjw9r-DBhBxEiwA9qYUpbBvBUIv7

Recommendation:

The cooperation between the MIT Sloan School of management and the MIT Computer Science and artificial intelligence Laboratory is very prominent and helps integrating AI more holistically.

2.2 AI-Strategy for Start-ups

AI, as we already mentioned, can be of great benefit to start-ups. Start-ups that are in their first stages may not be aware of the possibilities that AI can offer. A roadmap of how AI is most strategically used can be supportive.

2.2.1 AI Sweden Start-up Program by AI Sweden

AI Sweden Start-up Program helps participants if their start-up is working with AI. Furthermore it helps Start-ups if they want to learn more about what they could use AI for. The Swedish National Center for applied Artificial Intelligence has the mission to accelerate the use of AI in Sweden.

1. Learn: Online courses, open events, workshops and seminars
2. Connect: Access to AI Sweden start-up community, bi-weekly start-up community meetings, meet-ups with AI Sweden partners and collaborators
3. Accelerate: Full AI Sweden partnership, project access and engagement, access to the Data Factory & testbeds, legal and ethics, introduction to corporates and investors

Source: https://www.ai.se/en/start-up-program

Recommendation:

The first two stages (learn and connect) are open for all and free of charge. The third stage, accelerate, is accessible only by invitation from AI Sweden.

2.2.2 How to Achieve AI Maturity and Why It Matters — OVUM

In this AI maturity assessment model and road map, the journey to AI maturity places 4 stages: AI Novice (the company has not taken proactive steps on the AI journey and at best is in "assessment mode"), AI Ready (sufficiently prepared in terms of strategy, organizational set-up, and data availability to move forward and implement AI technology and solutions in defined operational scenarios), AI Proficient (reasonable degree of experience and an understanding of how to move forward with AI, but there are limitations in strategy road map, data capabilities, and technology resources) to AI Advanced (ahead of other companies in the AI journey and have AI expertise and experience, with a proven track record in AI-powered use cases).

The model includes a definition of Key dimensions; each dimension is evaluated to determine its maturity at which point an action plan can be developed.

Source: ai-maturity-model-whitepaper.pdf (amdocs.com)

Recommendation:

Detailed description of the individual AI phases and profound derivation of the individual measures.

2.2.3 The AI Maturity Playbook: Five pillars of enterprise success – Altimeter

This report lays out a maturity model for AI adoption in the enterprise. It outlines four macro shifts that define the impact of AI in organizations and society and five stages of AI maturity based on how organizations approach business strategy, data science, product and service design, organization and culture as well as ethics and governance. It also offers recommendations to build out one's own AI playbook.

1. Dimensions considered:
2. Strategy
3. Data Science
4. Product & Service Development
5. Organization & Cultur
6. Ethics & Governance.

Maturity phases in each dimensions:

1. Exploring (organization is considering use cases, consulting with experts but not yet committed significant time or resources to AI)
2. Experimenting (using either internal or external resources to experiment with AI for various use cases albeit viewed as discrete and non-scalable implementations)
3. Formalizing (data is now a core competency across the organization and AI is a key part of corporate strategy, implementations are market and customer oriented)
4. Integrating (AI is embedded into processes, products and services across the company and is delivering value to the business).

Source: https://insights.prophet.com/ai-maturity-playbook

Recommendation:

Sound coverage of all relevant dimensions.

2.3 AI-Strategy for big industries
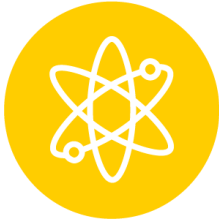
The reach and responsibility that large industries have is huge. That is why it is even more important that large companies have good AI strategies and do not neglect any important points. Here, an individual strategy helps to lead the way.

2.3.1 AI-Strategy by Arm

Arm is forging a path to the future with solutions designed to support the rapid development of AI. Arm combines the hardware, software, tools and strategic partners you need to accelerate development. They are providing everything the company needs to deliver a new generation of ideas and products.

1. Extensive Ecosystem: Arm's AI ecosystem accelerates time to market and redefines application portability for AI solutions.
2. Scalable AI Solutions: Arm delivers performance, scalability and extended configurability to simplify the deployment of AI across all markets.
3. Open Tools: Leverage Arm's global developer community to develop opensource industry standard tools for AI that eliminate lock-in and lower cost.

Source: https://www.arm.com/solutions/artificial-intelligence

Recommendation:

Broad service-portfolio around AI innovation. Among other services, arm offers inference processors for support. Unfortunately, the company is silent about prices.

2.3.2 National strategy for AI by Federal Government of Germany

Against the backdrop of the dynamic developments in the technology, the Federal Government's National Strategy on Artificial Intelligence provides the essential framework conditions. The AI strategy is designed as a learning strategy that needs to be continuously readjusted by politics, science, business and civil society.

Germany's AI Strategy is summarized in twelve fields of action.

1. Strengthen research in Germany and Europe in order to be a driver of innovation
2. Innovation competitions and European innovation clusters
3. Transfer to the economy, strengthen SMEs
4. Awaken start-up dynamics and lead them to success
5. Shaping structural change in the working environment and labor market
6. Strengthen training and attract skilled workers / experts
7. Using AI for sovereign tasks and adapting the competencies of the administration
8. Make data available and facilitate use
9. Adapt legal framework
10. Set standards
11. National and international networking
12. Conduct dialogs in society and further develop the political framework for action

Source: https://www.ki-strategie-deutschland.de/home.html

Recommendation:

Especially the eleventh and twelfth field of action of Germany´s AI Strategy could be important for big industries. Development is global, which is why big industries must also think and act in international cooperation. Also intensifying the social dialogue on AI, discussing opportunities and risks helps industries to gain more transparency.

2.3.3 Artificial Intelligence for Business Course by Wharton School and University of Pennsylvania

In the Artificial Intelligence Course, fundamentals of Big Data, Artificial Intelligence and Machine Learning are taught. Participates learn how to deploy these technologies to support the organization's strategy.

The course is subdivided in the following modules:

1. AI for Business Introduction, Big Data Overview/Analysis, Data Management Infrastructure, Data Analysis
2. Introduction to Artificial Intelligence, a Detailed View of Machine, Learning, Specific Machine Learning Methods
3. Business Applications of Machine Learning and Personalization, Challenges to Adoption
4. AI-Driven Business Transformation, Developing a Portfolio for AI Projects, Lowering Barriers for AI Use, AI in the Organizational Structure, Risks with AI, Governance

Source: https://online.wharton.upenn.edu/ai-business/

Recommendation:

This Strategy course also includes many Business Aspects and not only AI relevant topics.

3.1 AI-Transfer for small-medium enterprises

Transfer serves as the final step in the implementation of AI. What company-specific decisions need to be made to best implement AI? These are the decisions SMEs need to make in order to take the final step towards becoming an AI-supported company.

3.1.1 fortiss Mittelstand – fortiss

fortiss Mittelstand supports SMEs on the path to the digital transformation and relies on an extensive network of experts from research, industry, associations and administration in order to find the best possible solution. Through cooperation with AI-relevant fields of competence, SMEs are supported in analyzing potential, prototyping and validating new, AI-based products and services. The services are illustrated by the installation of demonstrators from various fields of competence in the "fortiss lab". Furthermore, fortiss is part of the DIH Munich Innovation Hub for Applied AI. This opens up its activities across Europe and can thus network Bavarian SMEs with research institutions and industrial partners from all over Europe.

Approach in discussion with SME:

1. Is my product still competitive?
2. How can I adapt my product to changing market conditions?
3. In what direction does my company have to move in order to remain competitive?
4. How can I improve my processes?
5. How can I train and educate my employees?
6. Is a research project really the right thing for my company?

Source: https://www.fortiss.org/en/about-fortiss/fortiss-mittelstand

Recommendation:

Scientifically very profound approach by very competent research fields. The broad service portfolio offers needs-based support for all questions concerning AI, among other things, also for those SMEs that are at the beginning of the digital change process.

3.1.2 AI-Transfer – Mittelstand 4.0 Kompetenzzentrum

The Mittelstand 4.0 Competence Centre Augsburg supports small to medium-sized enterprises and the skilled trades with free offers on their way to digitalization and into implementation of AI.

1. Approach in discussion with SME:
2. Which AI approaches can already be implemented in manufacturing companies today?
3. What distinguishes AI approaches from conventional approaches?
4. How do companies have to proceed in order to integrate AI technologies into their own processes or products?

Source: https://kompetenzzentrum-augsburg-digital.de/schwerpunkte/#1

Recommendation:

Scientifically very profound approach by very competent consortium consisting of sound scientific institutions.

3.1.3 AI Campus Berlin

The AI Campus is a not-for-profit space where research, start-ups and corporates come together and collaborate on Artificial Intelligence projects.

Network and Residents:

1. The AI Campus Berlin is partnering with a global network of AI researchers and universities. With co-locating event formats and more they ensure the constant flow of new inputs and inspiration.
2. They are building a strong foundation with their tech partners. Each of them bringing in a different set of expertise and exchanging with the community.
3. They offer permanent single desks as well as office spaces for select individuals and teams who are looking to engage and collaborate on a more regular basis.

Source: https://www.aicampus.berlin

Recommendation:

In times of the Covid-19-pandemic it can be difficult to work and get inspired together at their co-locations. A virtual space to meet up would either be great.

3.2 AI- Transfer for Start-ups

There are many ways to implement AI. For start-ups that are just taking their first steps, the decision to use AI in the right places in a supportive way can be a challenge. A roadmap can help make crucial decisions.:

3.2.1 AI-based Recommendation Engines by Ideamotive

AI-driven product recommendation engines are one of the most popular existing applications of machine intelligence in retail and e-commerce.

Ideamotive help companies anticipate consumer behavior to offer personalized recommendations and boost revenue through upselling and cross-selling.

Source: https://www.ideamotive.co/ai-developers/guide#top-industries-being-disrupted-by-ai

Recommendation:

Especially for start-ups, when the raising company needs to gain popularity, AI-based recommendations can help by making aware of new products.

3.2.2 AI for start-ups: common artificial intelligence tools and uses in business — ric centre

The RIC centre provides a list of common artificial intelligence tools and uses in business:

A. AI features in enterprise software
B. Artificial intelligence tools for analytics
C. Programmatic advertising with AI
D. Predictive analytics for recommendations
E. Virtual assistant services
F. Deploying AI chatbots at start-ups
G. Artificial intelligence tools for hiring at start-ups
H. Build your own AI with open-source platforms

As complicated as AI technologies are themselves, implementing them across an organization of any size can be difficult for any team. It requires everyone involved to get on board and a lot of trial-and-error before things can be optimized.

1. Identify a process
2. Show the value of the artificial intelligence tools
3. Get buy-in from all stakeholders
4. Acknowledge the capability gap in your organization
5. Identify, collect, and clean the required data
6. Run a pilot project to test the artificial intelligence tools
7. Start small and slowly
8. Get ready to grow

Source: AI for Startups: How to Use AI in your Software - Business Startup and Incubator Services (riccentre.ca)

Recommendation:

Can be recommended for software start-up founders who want to learn the basis of AI for start-ups when considering how to use AI in their products.

3.2.3 School of Artificial Intelligence/hands-on mentoring program by PI School

A selection of the best engineers receives personalized coaching and guidance from experts. They apply their new skills on the industry project provided either by their own employer or by world-leading tech companies such as Google, Facebook and Amazon, and fast-growing start-ups.

The principles are:

1. Merit first – Top engineers get in for free, PI School is used to give to those who transfer from abroad a travel and accommodation grant. Not anymore as the program is 100% online.
2. Learn by doing – Rather than listening to lectures, participants run into issues and solve them. Desks and environment are organized to support small project teams, agile co-development, interactions with mentor.
3. Real world projects – The partners sponsor top engineers to solve real challenges.

Source: School of Artificial Intelligence - Pi School - Machine Intelligence meets Human Creativity (picampus-school.com)

Recommendation:

This hands-on mentoring program is recommended for "the best" engineers with previous experience – and therefore exclusive and not accessible to everyone.

3.3 AI- Transfer for big industries
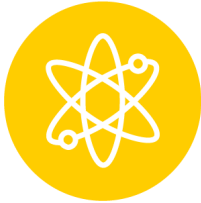
Big industries face big challenges. A lot of coordination is needed to keep track of everything. In this mass of information, the right clues must be found. This is exactly when large industries can benefit from the right use of artificial intelligence. But the transfer of AI itself to the large enterprise remains a challenge ...

3.3.1 Bayern Innovativ

Bayern Innovativ is knowledge manager, initiator and accelerator of innovations. The vision is a Bavaria where every viable idea and technology becomes an innovation.

Types of offers:

1. Networks & Thinknet: Connecting companies with universities and research institutes, important companies of the State of Bavaria, organizations supported by the State of Bavaria and many other technology and knowledge networks to form a strong think tank - the Thinknet Bayern. Thinknet Bayern, which was set up by Bayern Innovativ, combines experts and expert knowledge with modern methods of innovation management. The networks focus on the exchange of information on new developments in technology-oriented topics such as digitalization, energy, health, materials and mobility as well as the transfer of knowledge with lesser-known - but no less important - sectors such as the cultural and creative industries.
2. Consulting & Promotion: An important element of the daily work is to create transparency about funding opportunities and access to funding sources - at Bavarian, national or European level. In addition, Bayern Innovativ is the sponsor of several Bavarian funding programs. The experts advise companies, research facilities and institutions on the most suitable funding programs for their future projects. They provide equally competent advice on intellectual property rights, international projects or business models in the cultural and creative industries.
3. Events & Fairs: To ensure optimal knowledge transfer in Thinknet Bavaria, organization of large congresses, top-class working groups, workshops and coaching sessions and "Events 4.0". Many of their digital platforms and communication channels already use artificial intelligence. By appearing at the events or at the joint exhibition stands organized by Bayern Innovativ, they actively support the customers and partners in marketing their products and in accessing and developing new markets.

Source: https://www.bayern-innovativ.de/en/page/bayern-innovativ-living-innovation

Recommendation:

The challenge for Bayern Innovativ is to identify ideas as potential innovations and to assess them correctly. Through networks, marketing and events, the idea can be further developed, the right people can be approached and the technologies can be brought to the public.

3.3.2 Intelligent (Chat)bots by Ideamotive and Google

Bots have infiltrated the enterprise sector. Savvy companies leverage open frameworks such as Google Dialogflow or Motion.ai to build their own chatbot solutions and tap the opportunities from an additional channel of proactive customer engagement. While AI-powered bots are usually associated with conversational marketing, they can also become useful in performing routine tasks. Intelligent bots can

support humans by scheduling appointments, sending notifications and reminders, handling travel bookings, or conducting basic employee training.

The available solutions range from basic, pre-programmed automated bots answering a limited number of queries to fully-featured, AI-driven chatbots utilizing machine learning to replace a human agent at every step of customer interaction.

Sources: https://www.ideamotive.co/ai-developers/guide#top-industries-being-disrupted-by-ai

https://cloud.google.com/dialogflow/

Recommendation:

Especially in big industries, where there is a large number of employees and customers, bots can be helpful by answering costumer questions, scheduling appointments and conducting basic employee training.

3.3.3 How AI can transform Enterprise? – Automation AI

Automation AI postulates that companies across all industries can optimize and automate their processes to boost profitability by using data analysis and Artificial Intelligence capabilities, such as system automation or data-based decision-making.

Automation AI explains in his blog how AI can transform big industries:

1. Automatization with Intelligent Process Automation:
   IPA will set to increase the business process transparency, it will optimize back-end operations, and improving workforce productivity will increase process efficiency and customer experience.
2. Cutting edge analysis/Intelligent customization capabilities:
   In the company, AI will be leveraged to conduct extensive data analysis in less time to enhance the efficiencies of business processes, products and services.
3. AI can evaluate usage trends and then provide in-depth insights that bring data-driven decision-making to the next level.

Source: https://automatonai.com/how-ai-can-transform-enterprise/

Recommendation:

This blog also underlines the financial benefits. The IPA market is expected to be worth $13.75 billion by 2023.

4 Epilogue

Significant financial investments are naturally required for the implementation of AI projects. This is often only possible with funding from the EU or national governments. The European Union offers numerous funding opportunities, which can be found via the EURAXESS[1] search portal. The main focus is on calls from Horizon Europe[2] (Cluster 4 for digitization projects) and the Digital Europe Program[3]; calls sorted by topic can be found via the Funding Platform[4]. An up-to-date overview of active open calls under Horizon 2020 is provided by Funding & Tender Opportunities[5].

Information and an overview of government funding programs of the German Federal Government can be found in the Funding Database[6] of the Federal Ministry for Economic Affairs and Energy.

The Bavarian State Ministry of Economic Affairs, Regional Development and Energy also offers extensive funding opportunities[7] for different target groups and industries. These consist not only of financial but also logistical resources in the form of exchange platforms for a wide range of topics related to digitization. The Digital Bonus[8] offers dedicated assistance for the development of new business models and production processes as well as for IT security measures.

All of these support offerings lower the obstacles to getting started with a successful AI implementation. All it takes is a little bit of courage and willingness to change to seize the opportunities that AI offers.

[1] Funding Search | EURAXESS (europa.eu)

[2] Horizon Europe | European Commission (europa.eu)

[3] Digital Europe Programme: A proposed €7.5 billion of funding for 2021-2027 | Shaping Europe's digital future (europa.eu)

[4] EU funding programmes | European Commission (europa.eu)

[5] Funding & tenders (europa.eu)

[6] Förderdatenbank - Startseite (foerderdatenbank.de)

[7] Förderprogramme: Wirtschaftsministerium Bayern

[8] Digitalbonus.Bayern | Digitalbonus Bayern