

## **A 3 phases model towards an industrialization of (generative) artificial intelligence developed for corporate environments**

### **short paper**

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#### **Abstract:**

Companies face major challenges when it comes to developing a strategic approach related to artificial intelligence (AI). The massive growth of generative models is another indication that technology adaptation is associated with very large uncertainties. As a result, undirected activities in corporates occur in which so-called use cases, prototypes and minimum viable products are implemented. A targeted and strategic approach is hardly recognizable. The aim of the work carried out here was to develop a practical model that meets all parameters: moving forward quickly, learning from mistakes, developing unique selling points and thus competitive advantages ultimately resulting in an AI strategy. This is exactly what can be achieved in 3 steps, the efficiency phase, the competitive advantage phase and the transformation phase, all of which build on one another sequentially. The model presented here also makes a significant contribution to the development and adaptation of a responsible AI.

**Keywords:** digital transformation, generative AI, competitive advantages, technology-push, clinical trials, clinical studies, key performance indicators, change management, responsible AI, efficiency

## **1 Introduction**

Almost 1,5 years have passed: The hype - if that's what it is - surrounding Generative Artificial Intelligence, represented in particular by OpenAI, Aleph Alpha, Google Bard and others, is still present, although a little calm seems to have returned. In any case, one thing has happened in this relatively short period of time: Artificial intelligence (AI) is now no longer just a technology. It has become tangible and imaginable (cf. [Da24]). We all currently recognize what machines called digital computers are obviously capable of, even if they work extremely inefficiently, but can and will ultimately take over valuable tasks from humans.

Current research work is intensively concerned with the introduction of artificial intelligence applications in companies (for a systematic to date overview, please refer to [Ki21 and [Bo21]). The focus here is on selecting the right AI tools, knowledge management, change management aspects and decision-making processes. It is also

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assumed that the business strategies must lead to the selection of AI applications, but the reverse path is not taken into account. The model proposed, tested and unique to date in this work allows significantly more degrees of freedom: in particular the targeted adjustment of the corporate strategy considering current and future AI technologies.

## **2 The dilemma: short-term AI efforts versus the need to develop a sustainable and stable AI strategy**

There is no doubt that artificial intelligence will penetrate all industrial areas (cf. [Mc18], [Co18]). Strategic actions are necessary, and this is the only way to achieve lasting success. However, it is noticeable that the need to develop an AI strategy (cf. [Mi20]) is overshadowed by general questions:

- What level of maturity does the technology have and how trustworthy are the AI-generated results? [Sa21]
- How is the use of AI regulated externally and internally (e.g. works council)? What influence does this have on your own fields of application? [Bu18]
- What legal aspects arise when using AI, such as liability, protection of intellectual property, protection of personal rights, etc.? [Ca18]
- Do I have the necessary data, or how do I ensure the required data foundation? cf. [Se23]

These questions cannot currently be answered, or at least only partially. The level of uncertainty in companies is high (cf. [EF24]) and means that AI does not receive the necessary strategic attention<sup>2</sup> or even is advanced in a comparatively unstructured manner.

The result to overcome the dilemma described is a solution scenario that initially seems surprising: the industrialization of AI requires an agile approach from which the strategy gradually develops and not the other way around. This means that from initially specific use cases, the clues and later the critical success factors of the AI strategy to be developed are formed.

## **3 Towards AI industrialization: an approach in 3 steps**

We have seen this time and again in the past. Especially in the context of technologies, the risk of overvaluation is very high (cf. [Co23]). The first to do so will only rarely benefit from the time advantages that may exist, especially if the goals and expectations are too

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<sup>2</sup> while the awareness in context with AI in companies is very high, this does not necessary lead to a strategic attention aligned with the vision and goals of the enterprise

high and ambitious. However, short-term successes are essential for building trust and security in this domain and therefore also form the basis for strategic investments.

### Step 1: Generating efficiencies

A quick start requires quick successes. If these do not materialize, it will not be possible to develop a suitable AI vision for the company, as there is a lack of positive experience. Visionary promises, which are also disseminated by the media via all digital channels, can lead to ill-considered action and thus to disappointment. In this respect, it makes sense to align the first projects closely with the current business area and to optimize the associated processes and activities. Replacing human activities with automated systems is a good idea in precisely those areas where time-consuming, often routine-driven processes predominate (cf. [Ho00] and [Cu14]). Corresponding use cases that are barely coupled or even separated from each other will be developed, implemented and deployed (figure 1, step 1).

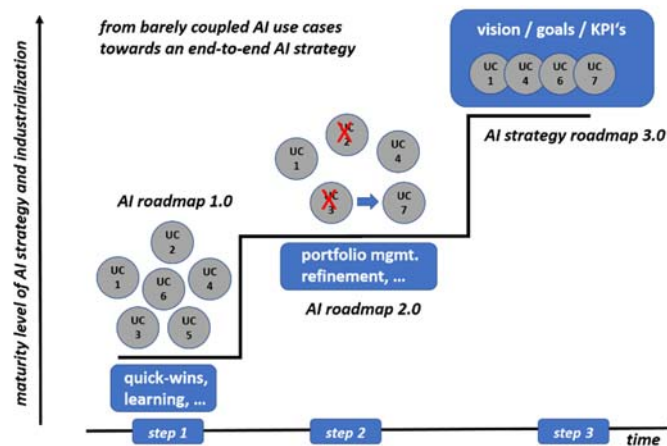


Figure 1: in three steps, use cases form evolutionary the AI strategy and are finally leading to an AI industrialization approach

### Step 2: Creating competitive advantages through the targeted use of AI

The next stage involves a much more strategic approach, i.e. the formation of a perspective that goes beyond short-term successes (cf. [Mc23], [Co22]). This also involves making initial investment decisions with a medium-term horizon. The competition is sounded out here, be it through benchmarking or to identify unique selling points for future entrepreneurial activity. The question is not about replacing humans with a machine, but rather about optimal implementation. Areas will emerge that are primarily processed by machines, i.e. automated, while others will absolutely require humans to carry out the

corresponding tasks. As a consequence, uses cases already identified and tested in the 1<sup>st</sup> phase will disappear, some have to be adjusted and finally, new ones will come up (refer to figure 1, step 2).

### **Step 3: The AI-based transformation of the company through to leapfrog innovation**

The aim of an AI-based transformation will be to expand the existing business model, whether by opening up new markets, developing new products and/or services or even diversifying completely (cf. [Ma19]). Innovations are now more tangible than ever and "creating something new" with the help of generative technologies is becoming a lived part of entrepreneurial activity. This can only succeed if people and machines work together, which means that the efficiency debate will initially take a back seat and give way to a strategic roadmap (figure 1, step 3).

## **4 Summary and Conclusion**

A step-by-step approach to implementing (generative) AI solutions in the corporate environment is necessary in order to successfully apply this currently highly valued technology. Initially, the rapid creation of experience with an appropriate short-term perspective is preferable to long-term, strategically plannable action. In this way, areas of success and problems can be identified at an early stage and transformational steps can be initiated on the basis of the relevant experience. Paradoxically, rudimentary human labor will initially be replaced by machine labor before the actual potential can be leveraged in the next step by merging humans and machines. It is only in this final stage, i.e. step 3, that an awareness of the responsible use of AI will develop. In the current hype phase, this is obviously still falling by the wayside.

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