



ADAPTION Maturity Model

SYSTEMATICAL APPROACH FOR INDUSTRY 4.0 & DIGITAL TRANSFORMATION

The hype surrounding digitalisation and Industry 4.0 in recent years has unsettled many small and medium-sized enterprises: Do I have to fully digitalise my company now? What do I have to start with? What are the right technologies for me? Do I even have the necessary prerequisites and resources? Against this background, politicians, associations and research institutions, among others, have developed a variety of so-called maturity models to help companies shed some light on the darkness of digitalisation.



In 2017, the Institute for Applied Labour Science (Institut für angewandte Arbeitswissenschaft, ifaa) selected ten maturity models from the multitude available and examined them more closely. It became apparent that some of the **maturity models on offer have certain shortcomings or dangers**: For example, some tests are so trivial that the results are not useful, while others determine the maturity level exclusively by the number of digitalisation techniques used. In addition, the maturity models "do not replace a self-critical and competent view of one's own starting situation" (Weiss 2017: 19).

The ADAPTION maturity model, which was developed by the Chair of Production Systems (LPS) at the Ruhr-University Bochum, among others, attempts to take up the positive findings from the existing maturity models and to avoid the critical aspects. To this end, guidelines were formulated in a joint research project as to which requirements the newly developed ADAPTION maturity model should fulfil and for which purposes it is suitable:

(1) Many maturity models that came onto the market in the course of the digitalisation or Industry 4.0 debate focus (almost) exclusively on the technical side. The ADAPTION maturity model, on the other hand, is based on the **socio-technical approach**, which emphasises the interdependence of its three dimensions: technology, organisation and personnel (T-O-P). If one dimension, e.g. technology, changes, this usually means that changes in the other two dimensions are also necessary. The socio-technical approach

ensures that the **change process is considered in its entirety**.

(2) The ADAPTION maturity model is not designed as a benchmark, nor is it intended to suggest that it is always better to get as far up or as far to the right as possible. Accordingly, the ADAPTION maturity model is not designed to achieve the aforementioned 'perfect maturity' with a view to digitalisation and Industry 4.0 by working through individual levels, as Hübner and colleagues (2017) suggest, but rather to find solutions that represent the **optimum for the respective company from the interaction of various factors** and can thus also lie below the 'perfect maturity' level.

(3) The ADAPTION maturity model can be used for different initial situations. It helps in the search for **solutions to concrete problems**, supports **strategic corporate planning** and stimulates the imagination when corporate managers feel a need for change.

ADAPTION Maturity Model

(4) The ADAPTION maturity model can be used for different objects of investigation. It can therefore be used for **different operational production areas as well as for the entire production**. The view of the inter-company value chain is also integrated. The ADAPTION maturity model is unsuitable for non-production-related functional areas such as design, marketing or human resources. Concentrating on production is intended to provide the necessary depth of focus and thus prevent overly trivial results.

(5) The **ADAPTION maturity model is changeable/adaptable** and does not aim at completeness. Rather, it is important that - depending on the area of investigation - unnecessary criteria are omitted or criteria can be added independently: The ADAPTION maturity model evolves through constant change.

(6) Overall, the ADAPTION maturity model is intended to **initiate discussions within the company**. It is intended to stimulate consideration of different, not only technical, approaches to solutions, and it is intended to prevent falling prey to a technocentric Industry 4.0 euphoria, which can be counterproductive: There are usually several ways to solve a problem or a new requirement.

(7) The ADAPTION maturity model does not specify fixed migration paths, but supports companies in deriving **individual measures** and identifying and shaping their own development path on the way to a cyber-physical production system.

</Implementation of ADAPTION in the company>

PREPARATION

- The **Digital Coach gains a deep understanding** of the company including the (e.g. societal) circumstances and the corporate culture that make up the current situation of the company.
- In addition, the Digital Coach makes a **company-specific adaptation of the ADAPTION model**.

IMPLEMENTATION

- The **Digital Coach analyses the current state of digitalisation** in the examined area of the company.
- The Digital Coach determines the **target state of digitalisation** together with the company.

FOLLOW-UP

- The **Digital Coach and the company work together to develop a concrete action plan** to bridge the gap between the current state and the target state.



The ADAPTION maturity model offers **different target states** with its characteristics. In addition, other methods such as exchanges with other companies, reading practice-oriented specialist books or magazines, the internet or visiting trade fairs and information events can also be used to define goals. In addition, the ADAPTION maturity model opens up a **holistic view** by showing the respective dependencies on other criteria in the model and minimum requirements of individual target goals and their characteristics. This avoids a one-dimensional view; the holistic (also to the upstream and downstream functional areas) and socio-technical perspective is maintained. At the same time, the latter helps to avoid striving for an exclusively technical solution. It is precisely the interdependencies of the socio-technical dimensions that can lead to supposedly unambiguous technical solutions proving not to be as suitable as alternative organisational or personnel-related alternatives on closer examination.

The alternative solutions are subjected to closer scrutiny, which could be guided by the following questions, for example: **Can the solutions envisaged be integrated into the operational processes (upstream and downstream processes)? Are they compatible with the job profiles, qualifications and competences of the employees? What are the weaknesses of the alternative solutions? What financial, organisational, time and human resources need to be allocated?**

ADAPTION: Implementation phases and role of the Digital Coach