

Kienbaum Survey 2022

FUTURE SKILLS IN MECHANICAL AND PLANT ENGINEERING

**An analysis across
the product life cycle**

Kienbaum



Realization by Institut **Kienbaum@ISM**

Key Findings

Mechanical and plant engineering in Germany is in the midst of digital transformation. Digital technologies are changing the process landscape in companies and redefining value chains. For mechanical and plant engineering, this means in particular increasing connectivity within the individual phases of the product life cycle (PLC). In the future, employees must be able to work together collaboratively across phases. The digital transformation is not only to be understood as a technological change, but also requires new competencies from employees.

Defining these future competencies (or „future skills“) is the crucial starting point for future-oriented competency management. This study examines which future skills are particularly relevant in mechanical and plant engineering along the individual phases of the product life cycle in order to offer companies in the mechanical and plant engineering sector assistance in developing a competitive workforce.

On the basis of a representative company survey, statements were generated that provide important guidance for the mechanical and plant engineering sector.

- Overall around 80% of companies said they were **strongly or very strongly affected by digitization and Industry 4.0**. It is therefore not surprising that **almost 90% of these companies are undergoing change** processes. These are technological (33%), but also organizational (27%) and process-related (22%). Only 17% of the companies surveyed report changes in corporate culture.
- Future competencies are rare: **four out of five companies see themselves – also due to the skills shortage – confronted with a skills gap**. They state that they do not have all the future skills needed in the next 5-10 years.
- The **majority of companies** are well aware of how important future skills are for the long-term success of the company, but they are **unclear about which specific competencies are relevant in their company**. Just among one in two companies is currently working on this definition. Only one in ten companies has already defined these competencies in form of a competency model.

- Along the **competency dimensions of functional competencies, cross-functional competencies, behavioral competencies, mindset and leadership competencies**, the study shows which competencies are relevant in **which phase of the product life cycle and which will gain importance in the future**.
- The results also show which competencies still have potential. The companies see the **greatest development potential**, for example, in **interdisciplinary agility and willingness to change**. In terms of **leadership competencies**, there is a strong need for development in the areas of **employee development, virtual leadership, digital strategies and digital business models**.
- The **functional competencies are clearly related to the phases of the product life cycle**. Corresponding diagrams illustrate the connection between phases and competencies. The other dimensions are understood as cross-phase and are gaining importance against the background of increasingly networked work.
- In particular, the increased importance of **cross-phase competencies, such as interdisciplinary work and a willingness to change**, show that Tayloristic functional considerations no longer meet the requirements of networked and complex issues within the product life cycle.
- In accordance with the competencies that will be relevant in the future, **the study shows in detail, which job profiles are increasingly in demand in which phases**. More than 40% of the companies named **systems engineers, technical product managers, and I.4.0 service technicians** as the three most important job profiles.
- In order to ensure that the necessary skills are available, around 80% of companies focus on **appropriate recruiting measures**. Further training however, is rated as equally important. 80% of the companies use **upskilling to build up the skills of their specialists**. Reskilling is also used by 56% of the companies, to develop their employees.
- **Professional development is a central lever of competence development**. The majority of companies rely on training and qualification programs (79%), but also on learning in the process of work (76%), offers and/or programs of continuing education (74%), self-directed learning (65%), and in-company promotion and individual support for skilled workers (60%).

The study results not only help to quantify the need for competencies, but also concretize the relevant future competencies in mechanical and plant engineering. Based on the study results, a competence box was developed that can be used to derive the competence requirements for specific competence profiles.

The competence box is part of a detailed handout that offers VDMA member companies valuable suggestions and practical help in setting up and designing a future-oriented, integral competence management system.



About the study

The study was conducted in cooperation between **VDMA** and **Kienbaum Consultants International GmbH**.

The operational implementation and scientific support of the survey was carried out by the **Kienbaum Institute @ ISM**, the in-house research facility of Kienbaum. As part of the study, qualitative interviews were conducted with relevant industry representatives and 148 member companies were surveyed on both future relevant competencies and job profiles in mechanical and plant engineering.

Kienbaum Consultants International GmbH

Edmund-Rumpler-Straße 5 | 51149 Köln
Telefon +49 221 80172-0
contact@kienbaum.com
www.kienbaum.com

VDMA e.V.

Lyoner Strasse 18 | 60528 Frankfurt am Main
Telefon +49 69 6603-0
info@vdma.org
www.vdma.org