

operations¹



Liebherr-Verzahntechnik GmbH

Success Story

How Liebherr-Verzahntechnik GmbH uses production-oriented knowledge management to counter the shortage of skilled workers and achieve consistent product quality worldwide

✓ **-70 %** effort involved in employee training

✓ **-50 %** training time for employees

✓ **-66 %** time required for production relocation

LIEBHERR



About *Liebherr-Verzahntechnik GmbH*

Liebherr-Verzahntechnik GmbH is part of the Liebherr Group, which was founded in 1969. The Liebherr Group comprises 13 product divisions, including Liebherr-Verzahntechnik GmbH, which employs over 1,700 people at six production sites worldwide.

The family-run company offers a comprehensive range of machine tools and machine automation for the industrial production of gears.

The products of Liebherr-Verzahntechnik GmbH are used primarily in the automotive and commercial vehicle industry, in mechanical and plant engineering and in wind energy. Thanks to its high quality standards, the company has established itself as an innovation leader in gear technology.

Other production sites are located in the USA, Brazil, India and China.



HEADQUARTERS IN
KEMPTEN, GERMANY



Challenges

As a mechanical engineering company with over 50 years of experience, Liebherr-Verzahntechnik GmbH is aware that long-term success is based on qualified personnel, expert knowledge and efficient knowledge management for manufacturing high-quality machines. Therefore, **employees and specialized knowledge are regarded as the most important resources** in the company.

However, Liebherr-Verzahntechnik GmbH was confronted with two central challenges in the context of internationalization and demographic change:



Shortage of skilled workers and knowledge transfer

- The retirement of experienced workers threatens the **loss of crucial assembly knowledge** that has been built up over decades
- There is a **shortage of new talent**, as the number of applicants and employees who have been with the company for a long time is declining – the situation on the temporary employment market also remains tense
- **Training methods based on the master-student principle are complicated by language barriers and require a training period of several weeks**, while product development cycles are becoming ever shorter – new employees of any national language must become productive more quickly through more efficient, multilingual training
- **Work processes are complex and paper-based** – a more efficient and modern execution of assembly activities is required



Global standardization of processes

- Different working methods and individual experience of the assembly technicians lead to **deviations in assembly quality between the international production sites and external assembly partners**
- There is a need for **simple, multilingual and future-proof documentation** that is equally understandable, usable and easy to distribute for all locations



Production-oriented knowledge management as the basis for success

The current challenges led Liebherr-Verzahntechnik GmbH to think more about how process knowledge about work steps can be efficiently documented and reliably communicated to national and international employees as well as external assembly

partners. This required a simple and intuitive solution that could be used by all employees – regardless of their experience with modern technology such as tablets or PCs.

In this context, it emerged that the integration of external assembly partners, localization and the changing market for skilled workers place similar demands on production-oriented knowledge management:



Requirements for production-oriented knowledge management

- ✓ Simple documentation of work steps by production for production
- ✓ Faster, more efficient training and ensuring the same work processes regardless of the production location
- ✓ Integration of a multilingual solution for international collaboration
- ✓ Quality documentation compatible with existing systems



“We have many international locations and an incredible amount of special knowledge in the heads of our employees. That's why we were looking for a solution to document it properly and for the future and to ensure that every location builds the machines in the same way and that the quality remains the same.”

Thomas Unmuth
Head of Production
Liebherr-Verzahntechnik GmbH

On the way to the digital process

After intensive research, Liebherr-Verzahntechnik GmbH came across Operations1 and opted for the software for the following reasons:

Reasons for Operations1

- ✓ Very easy to use software
- ✓ Multilingual and internationally applicable
- Existing basic functions for document management:
 - ✓ versioning, authorizations, release workflow, modular document structure
- ✓ Flexibility in the connection to existing systems



"Operations1 scores on simplicity: creating and working with digital multilingual instructions is quick and easy and anyone can do it."

Martina Waldmann
Industrial Engineering
Liebherr-Verzahntechnik GmbH

Start with a pilot project in a stand-alone approach

The documentation of a **complete assembly of a large machine and a training course for the subsidiary in China** were defined as a pilot project.



Pre-assembled modules are delivered to the subsidiaries where assembly staff carry out the final assembly of the machines.

As part of the shopfloor-driven project, it was decided to initially introduce Operations1 without a connection to other systems in a stand-alone approach. This meant that Liebherr's own IT resources were only required for setting up single sign-on (SSO).



“Thanks to the modularity, we can perfectly display the individual differences of our machines in Operations1 with variant-specific digital instructions and thus communicate them more easily to the employees.”



Thomas Unmuth
Head of Production
Liebherr-Verzahntechnik GmbH

Variant-specific process knowledge easily documented and made comprehensible

As the process knowledge for the final assembly of a large machine existed exclusively in the heads of the employees, a long-serving assembly employee was tasked with future-proofing the assembly steps in Operations1 using digital work instructions. Together with the project managers, the employee created

the assembly-specific documentation as step-by-step instructions including images in the Operations1 software.

In addition, the instructions were automatically translated into Chinese with just a few clicks using the integrated translation function.

Training and testing in China

After a few minutes of instruction on the software, the Chinese colleagues tested the digital assembly instructions provided in the local language.

The result was convincing: they carried out and documented assembly steps efficiently and independently in the predefined process quality.



Digitalized assembly process with Operations1 - the advantages

The following added values were already observed during the pilot project:



Shorter training period compared to conventional training

The training period for the Chinese colleagues who were trained in Germany was reduced by 50 % compared to historical values



Autonomous work already during training

Due to the good documentation in Chinese, autonomous work was already possible during the training period



High acceptance of the software among employees

Staff feedback on the use of the software is positive, as an employee can be working with the software within a few minutes



Standardized documentation and increased transparency

By logging the assembly steps in Operations1, complete documentation is now available in real-time





"Thanks to better documentation, we save up to 70% on training. One foreman can now supervise 5 temporary workers at the same time. For us, Operations1 is an important building block to strengthen our position when it comes to the shortage of skilled workers."

Thomas Unmuth
Head of Production
Liebherr-Verzahntechnik GmbH

Increased speed when localizing and relieving trainers

The successful completion of the pilot project revealed further advantages: Whereas the relocation of a product line previously took up to three years, the systematic documentation and intuitive knowledge transfer **reduced the relocation process to one year**.

It was also noted that new employees work more autonomously thanks to the worker-guiding instructions during training, which relieves trainers enormously. One trainer can now supervise five temporary workers at the same time and provide value-adding support during the assembly of a large machine.



"With Operations1, we can standardize our processes regardless of the location. This is a major driver for our efficiency and quality."

Martina Waldmann
Industrial Engineering
Liebherr-Verzahntechnik GmbH

-70 %

EFFORT INVOLVED
IN TRAINING NEW
EMPLOYEES

1 trainer

CAN SUPERVISE
5 TEMPORARY
WORKERS AT THE
SAME TIME

-66 %

TIME REQUIRED FOR
PRODUCTION LINE
RELOCATION

Further added values

- ✓ Reduced workload in document management
- ✓ IT resource-saving introduction of the software
- ✓ Centralized and intuitive assembly knowledge for international locations in all required languages
- ✓ Increased process reliability and consistent quality regardless of location

Strengthened for the future through digitalized processes

Operations1 is now an integral part of the assembly and testing processes at Liebherr-Verzahntechnik GmbH and enables significantly simplified and faster training of personnel. This allows the company to react more flexibly to external influences.

The software is now being used successfully in several areas to train the company's own staff and temporary workers – both in national and international locations and at external assembly companies.

- Successive rollout of the documentation to other components and machine types
- Introduction of Operations1 in the field of "Automation Technology"
- Pilot for connecting Operations1 to related systems such as the ERP system

Outlook for the future



"Operations1 saves money and increases efficiency. We're not just talking about " as long as it's digital", but it brings us a huge step forward in production."

Thomas Unmuth
Head of Production
Liebherr-Verzahntechnik GmbH

operations¹

Operational Excellence on the shopfloor

With Operations1, your employee-led processes become more secure, efficient and transparent. Increase your productivity, reduce error rates and optimize your operational processes flexibly and continuously.



Do you have any further questions?

Contact us!

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