

## — HENKEL: PREVENTIVE QUALITY MANAGEMENT WITH PEAKAVENUE E1NS

# Global rollout of professional FMEA software for complex challenges

*Henkel AG & Co. KGaA, based in Düsseldorf, is a globally operating company that is a leader in both the industrial and consumer business. The two business units Adhesive Technologies and Consumer Brands each generate annual sales of 11 billion euros. While Henkel is primarily perceived by the public as a detergent and cleaning agent company with its Consumer Brands business unit and the Persil, Somat and Pril brands, the Adhesive Technologies business unit primarily supplies industrial customers with adhesives, sealants and functional coatings. Henkel Adhesive Technologies produces these in around 130 plants worldwide with around 25,000 employees for a total of around 100,000 industrial customers. The automotive industry is one of the largest customer segments for Henkel Adhesive Technologies. The enormously broad portfolio offers well over 200 different solutions that are used in vehicle bodies, interiors and electronics. In 2022, Henkel decided to standardize the quality assurance of all products by introducing professional FMEA software. The choice fell on the software from PLATO GmbH in Lübeck, one of the two founding companies of PeakAvenue GmbH.*

"The automotive industry has extremely high quality requirements. To meet these, we are taking the path of preventive quality management. Our aim is to optimize our solutions with the help of the right software," explains Kristoffer Lindner, Global Head of Preventive Quality and Quality Lifecycle Excellence at Henkel Adhesive Technologies.

### FMEA as a central tool

Henkel has placed failure mode and effects analysis (FMEA) at the center of its entire production and quality management - a tool that is usually used in industrial assembly rather than in the chemical industry. "Until a year ago, FMEAs were still created in almost all of our plants using local Excel solutions. This was not very convenient, time-consuming and did not allow for transparency and consistency between the plants. However, we want to make our expertise visible and available in all our plants," says Lindner. For Henkel, digitalization always means making work easier and increasing efficiency - and thus increasing competitiveness.

### Software requirements

In the search for professional FMEA software, all known providers on the market were examined. Contact with PeakAvenue had already been established, as two Henkel plants were already using the previous version of PeakAvenue e1ns with PeakAvenue SCIO. Both the software requirements of the IT department and those of quality management played a role in the decision at the end of 2021. In addition, Henkel asked many FMEA users from the automotive sector about their experiences in order to utilize their expertise and increase acceptance.

"When comparing the providers on the market, the PeakAvenue e1ns software was the leader in all areas. No other software had such a clear and user-friendly structure as PeakAvenue e1ns, so the decision was easy for us," reports Lindner. The functional scope of the PeakAvenue software could be tailored precisely to Henkel's requirements. "It is important to us that the software only provides features that we actually need. In industrial assembly, the requirements for FMEA software are much more complex than in the chemical industry. We wanted to avoid overloading the software at all costs."

In addition, the very good linkability of P- and D-FMEA, as offered by PeakAvenue's software, contributed to the purchase decision. "This allows us to cover all risks: from our own production machine to the end product at our customers," says Lindner. "This allows us to focus our attention more on the needs of our customers." Another advantage of the PeakAvenue FMEA is that errors can be linked very easily. This reduces the complexity of the FMEA for users at Henkel to an absolute minimum.

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### Technical implementation

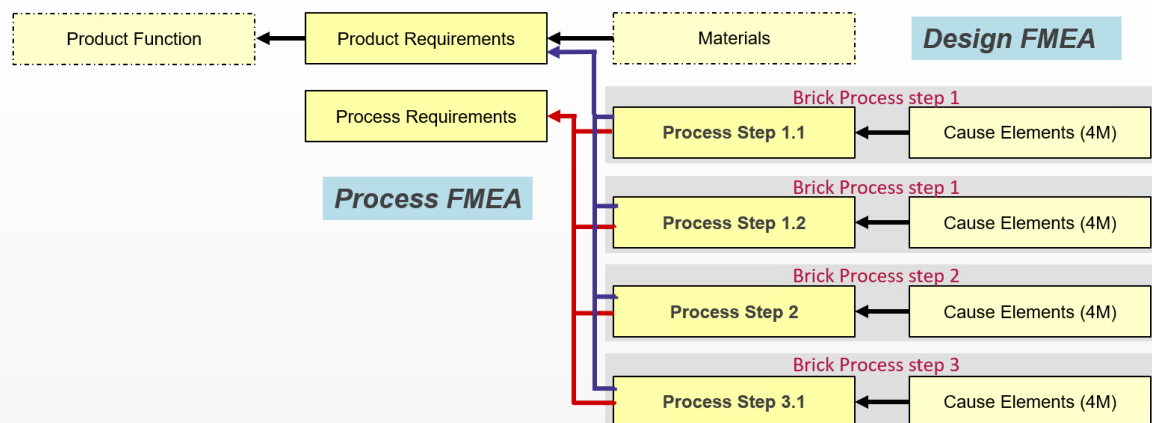
Once PeakAvenue e1ns had been selected, the technical implementation of the software was carried out by Henkel DX, the company's own IT department. This went quickly and without any problems. The application was installed directly and exclusively on the Henkel server - currently still as a stand-alone solution. Lindner: „However, our aim is to link the software with other applications and thus our FMEA data with other data fields in order to increase our data business intelligence. This will allow us to identify trends and key errors more quickly.“

### Set up FMEA

In order to adapt the FMEA to Henkel's requirements, Henkel's quality management team visited one of the Henkel plants where products for the automotive industry are manufactured together with PeakAvenue for the first time in March 2023. As part of this one-week workshop, subsequently called FMEA Bootcamp, the concept for a Henkel-specific FMEA methodology was developed directly on site with the involvement of the shopfloor. The creative impetus for this came from Marie-Christine Martinez CVP Quality and Product Compliance at Henkel Adhesive.

After the first implementation was successful, the software and method were rolled out in 25 other Henkel plants in all five regions by the beginning of 2024 - each accompanied by a one-week FMEA boot camp directly on site. Priority was given to IATF-certified plants and those with high production volumes. Many more plants will follow in 2024.

„In these workshops, the focus is not only on the technology of the new software, but also specifically on production on the shopfloor and integrating it into the FMEA methodology,“ explains Lindner. „We want to reflect reality 100 percent.“ Lindner's aim is not only to look at the risks during the initial workshops, but also to incorporate the entire methodology, raise it to a higher quality level and standardize it at the same time. „Ultimately, it's a kind of reverse FMEA that we create in the process, which is otherwise more familiar from the automotive sector. However, we integrate the reverse FMEA directly into the initial development process. To do this, we look at the existing process in the plants as we create it and in this way we can optimize the processes much.“



Linking of the design FMEA with the process FMEA and use of templates ("bricks") for the process steps.

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### Follow-up support and employee training

The workshops are concluded with a follow-up session to address participants' questions arising from the use of the new software. In addition, regular meetings of key users and moderators ensure that the methods and software are synchronized between the individual Henkel plants.

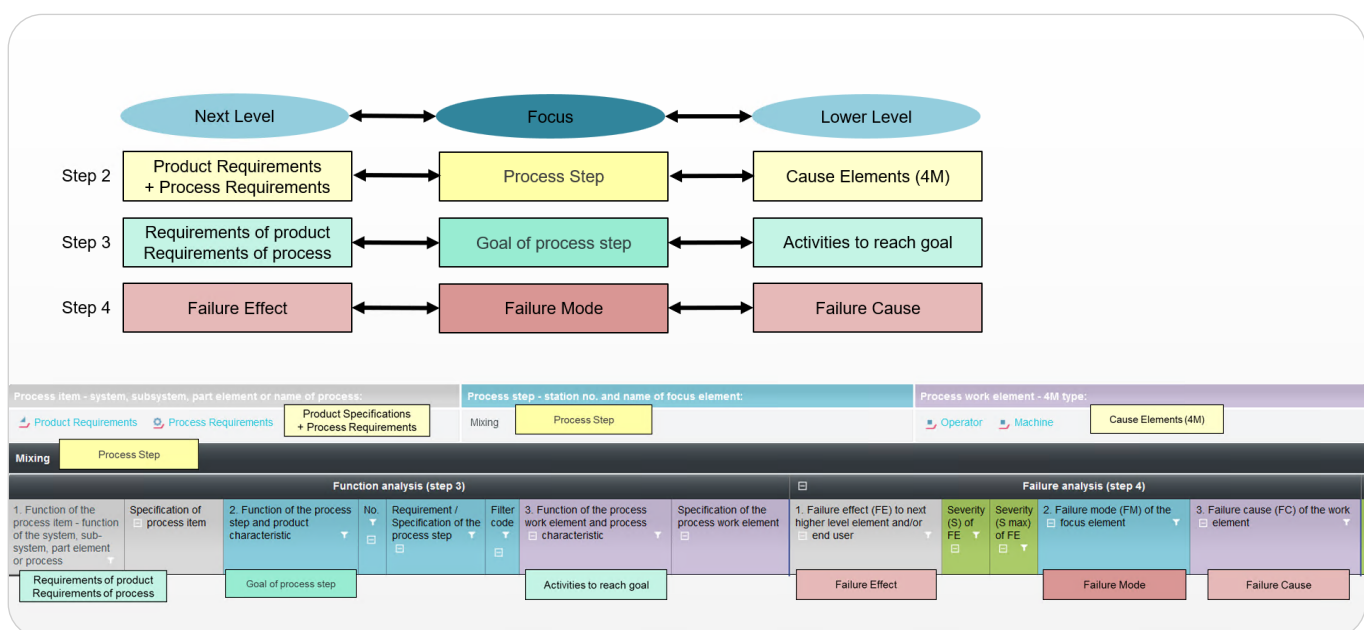
For Lindner, intensive training and high-frequency use of the software tool by users plays a crucial role in acceptance and sustainable success after implementation: "That's why user support and employee training are extremely important to us."

Henkel has set up its own platform for employee training. It offers FMEA training in small groups in three stages, each with its own trainer: as method training (8 hours), as software training (16 hours) and as moderator training. Further, the platform provides videos for self-taught learning. In addition, the moderators from the various regions meet monthly and share their experiences from their plants. This enables Henkel to centrally control and standardize the quality of FMEAs at all plants.

### FMEA method training by PeakAvenue

"PeakAvenue is very experienced in creating FMEAs, which is why they also carry out the training for us - the method training even for the plants where we have not yet introduced the PeakAvenue software," says Lindner, appreciating the high level of expertise and support from PeakAvenue. For PeakAvenue, this is part of everyday working life, as they also train other customers in the FMEA standard methodology. However, as the methodology at Henkel is adapted to Henkel-specific requirements, training is also carried out using Henkel-specific examples in this case. "Our users must recognize their own professional environment in the training courses, so the examples in the training courses must also be tailored to the specifics of the chemical industry," says Lindner.

The method training courses are necessary, for example, when employees change or in plants where the method and software are being rolled out for the first time. "The training courses are so well received that the demand is higher than the number of training courses we can offer with PeakAvenue," enthuses Lindner.



After modeling the system structure and linking functions and faults, the data is automatically entered in the FMEA form.

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### Valuable transparency

The key users and moderators are mainly responsible for the FMEAs in the Henkel plants. Together with the rolling participants, they form a group that regularly discusses quality issues at the highest professional level. With the help of the PeakAvenue software, they now have the ability to view the FMEAs of all plants. "This transparency significantly improves quality in our plants," says Lindner.

When creating new FMEAs, the Henkel plants are offered so-called "bricks" via PeakAvenue e1ns. These are FMEA building blocks that map the individual process steps, like for example "blending". Templates for these "bricks" are stored for download in a central database directly in PeakAvenue e1ns, to which all plants have access.

### FMEA optimization

When creating its FMEA, a plant can use the templates directly - or modify them according to its own plant- and product-specific requirements and thus use a modified FMEA module that e.g. takes other or additional potential faults or actions into account. The central PeakAvenue software registers these subsequent changes to the templates - and the frequency of identical modifications can be used to determine whether the template should be changed accordingly. The central change of a template is communicated to all users, who can then semi-automatically incorporate it into their own FMEAs that use this module. "In this way, the library is constantly fed with experience and knowledge from the plants and our FMEA templates are constantly optimized.

And the new knowledge flows directly into the optimization of existing FMEAs and the creation of new ones," Lindner also considers this software feature of PeakAvenue e1ns to be enormously helpful.

Lindner sums up the experience of implementing the PeakAvenue e1ns FMEA software: "We are convinced that with the help of PeakAvenue's software, we can eliminate as many product errors as possible when looking at the customer and as many process errors as possible when looking at our own plant from the outset, thereby significantly optimizing our preventive quality management. We learn from each other across plants - this makes us faster, more efficient and more competitive on the market."

### Outlook

"With our bricks, the FMEA building blocks, we want to capture a critical mass of process steps in the future," says Lindner, looking ahead. "When our users create a new FMEA, we want to enable them to download all non-plant-specific process steps as templates from the central library."

Over the next few months, the software and methodology will be rolled out at full speed in other Henkel plants in the automotive sector. In addition to these plants, the FMEA standards will also be established in other Henkel business units in the future, even if the quality requirements are overfulfilled there. "We want the entire company to benefit from our experience in all areas," says Lindner.



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