

## Ask and Answer with Qualicision A2

Most PSI software tools are equipped with optimization and decision components based on Qualicision AI. Using Qualicision AI Generative now a connectable product component is available that based on a text processing as well as text generating language model (large language model) allows targeted training of topic specific texts.

The product Qualicision A2 (A2 stands for Ask and Answer) allows to add any information available in text form about products, application areas as well as the associated user manuals or other documents for an existing application. In this way, the requirements can be created to equip software tools and applications with an explanation component that allows text-based conversations with the application or with the associated software tool. Figure 1 shows in what form Qualicision A2 can be integrated in Qualicision AI.

### Switchable topic priorities control response behavior

Moreover, Qualicision A2 allows to influence by means of the Qualitative Labeling technology the response behavior regarding user asks by using of topic priorities. Topic priorities emerge by using user-defined catalogs of important keywords via Qualicision AI from the special texts qualitative labels are learned. The learned qualitative labels are then linked to sliders that can be set on the interface. The settings chosen in this way allow the response behavior to be adapted to the Qualicision A2 component being trained in each case. In cooperation with a learning software that monitors the system behavior, confirming and rejecting user interactions can also be used for automated retraining. Figure 2 shows the system architecture of

Qualicision A2 with the connection to the Qualitative Labeling.

### Integration as library and switchable via the basic tool Qualicision AI

Qualicision A2 will be available both as a library and as a compo-

### An example: Qualicision A2 texts about Qualicision AI

To illustrate working with Qualicision A2, the following shows how user-led conversations about the topic of Qualicision AI technology can arise when applied to itself. To do this, the system was trained to

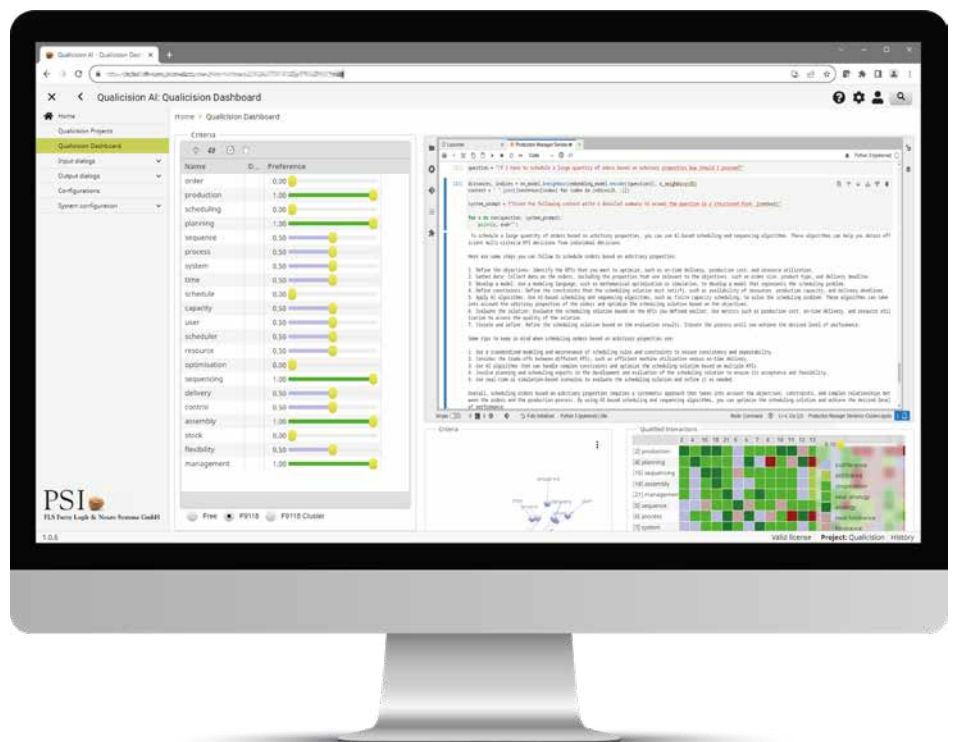


Figure 1: Qualicision A2 as component of the Qualicision AI GUI with integrated Chat component and slider for preference setting of keywords at training.

ment that can be switched and controlled via the Qualicision AI GUI. This also applies to all PSI products and to all existing customer applications. New applications are also possible, including those that have not previously been in contact with PSI products. In this respect, the market for the tool is completely open here.

select texts consisting of (mostly) English-language user-oriented articles about Qualicision AI technology that PSI FLS has published. These articles can be viewed at <https://www.fuzzy.de/en/news-events/presses-timmen.html>. Figure 3 shows some Asks and Answers of the system. In addition to the generated text outputs, the system also provides

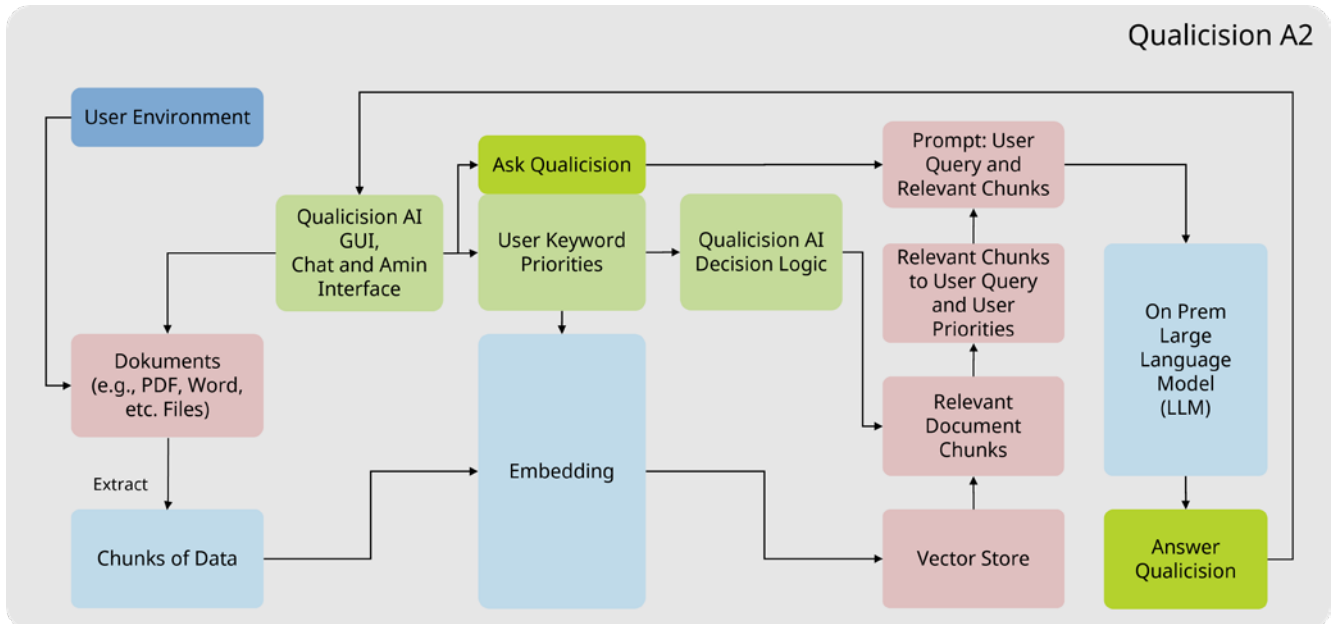


Figure 2: System architecture of Qualicision A2.

information about the text sources that had the strongest relevance in generating the answer. Therefore, the dialogs additionally provide links to the most relevant documents from which the generated texts are derived. This is particularly important in systems that are based on classic documentation such as user manuals or other product documentation such as maintenance docu-

generated generically via any texts which are composed of text outputs and document references. How a concrete system is ultimately configured for a concrete application situation can be decided individually from task to task and parameterized independently by the customers or users. Qualicision A2 and Qualicision AI Generative provide the framework for this.

tive of customers, besides the actual functionality, will be the advantage that Qualicision A2 is organized in such a way that all training processes and applications themselves remain within the infrastructure of the respective customer environment as well as completely under the control of the applying company. Regarding the infrastructure, the requirements can also be modeled. The training processes at PSI FLS currently run on the following architecture,

- CPU: Intel(R) Core (TM) i9-7920X  
CPU @ 2.90GHz, Memory: 64 GB
- GPU: 2x NVIDIA GeForce RTX 4090 24 GB, Memory: 1 TB SSD  
2x 4 TB HDD.

Depending on the volume of training data, training times of a few hours are feasible. The response times of the system are in the range of an average write speed. Accelerations can be made possible by the corresponding hardware. 🌀

<p>- Query: How to support industry application by using Qualicision? - Answer: Qualicision AI Generative: By implementing Qualicision technology as a software system for intelligent decision-making, and process optimisation across industrial sectors.</p>	<p>- Query: If I have to schedule a large quantity of orders based on arbitrary properties how should I proceed? - Answer: Qualicision AI Generative: To do this, you first need to specify which property is most important. You can then determine an ideal workplace for that order by applying certain rules (e.g. "if the operation has the earliest desired deadline"). If the order can be completed at that time and place, it will be scheduled there. All other orders are ordered according to their importance. At this point, it is important to note that the sequence planning in finite capacity scheduling is only based on some rules which make use of various algorithms or heuristics. It is not a complete algorithm for solving the problem; for example, the heuristic for determining the most important operation cannot be found in any textbook about operations research. - Source: PM_2015-03_Smart_Face_EN.pdf, PM_2015-01_PSPental.eitstand with Qualicision_EN.pdf, PM_2009-01_VC_Corporation_EN.pdf, PM_2018-02_Predictive Optimization with Deep Qualicision_EN.pdf</p>
<p>- Query: What to do if I have a dataset with many duplicated entries? - Answer: Qualicision AI Generative: The Deep Qualicision AI Framework provides a solution. It allows for automatic detection of duplicates through an unbiased, robust methodology based on similarity metrics. This approach is also possible when dealing with historicized data, i.e., with previously collected data. Historicized data is also included in the process by using the same methodology described above and then used to search for duplicate entries in existing databases. - Source: PM_2020-04_Duplicate_Detection_with_DQAI_EN.pdf, PM_2020-03_Data_input_validation_with_DQAI_EN.pdf</p>	<p>- Query: Why is the Qualicision Relation Matrix not symmetrical? - Answer: Qualicision AI Generative: Because in Qualicision® the production manager must actively intervene to improve KPIs. In other words, there are situations where the process manager must take a proactive role in production control so that KPIs can be kept at the optimum level. - Source: PM_2014-04_Leitstand_hohe_Auflösung_EN.pdf, PM_2020-01_Explained_AI_by_means_of_KPI_labels.pdf, PM_2009-01_VC_Corporation_EN.pdf</p>

Figure 3: Examples of Asks and Answers with Qualicision AI itself generates by means of Qualicision A2.

mentation, concept papers, etc. and that provide users with information on which documents contain further information. In this way, any combination of dialog behaviors can be

### Technical parameters and integration into a customer environment

The most important argument for using our product from the perspec-

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