



AI DOCUMENT ANALYSES FOR EFFECTIVE SEARCH AND CREATION OF A KNOWLEDGE POOL

For a service employee, there are many sources from which they can and must draw knowledge during a service assignment. On the one hand, these are machine manuals and data sheets, old service reports with possible hints for solving a problem, or even training notes. These data are mostly available as a text document (".pdf" and ".docx"). Collecting this knowledge and making it easily available enables problems to be solved efficiently on site. Document analysis makes this possible and also creates and constantly expands a knowledge pool.

FOR THE FOLLOWING CHALLENGES

- Gathering of all available information,
- Handbooks or best practice guides
- Quickly search and find documents
- Creation of a knowledge pool

THE USE CASE

For the maintenance of technical machinery, documents on the technical background of the equipment are of central importance. Technical documents such as machine manuals and service reports are usually stored or saved in a decentralised manner.

Access is usually via a service centre or via on-site searches. This is tedious and, in the worst case, important documents cannot be found at all.

In the end, after the searched document has been accessed and the problem has been solved, the documents are usually stored decentrally again and the whole search process starts again from the beginning for the next service case.

THE SOLUTION IN DETAIL

The development of an AI-based document analysis helps the service technician to work more effectively in the long term.

For document analysis, the documents are entered via a REST interface. By means of Natural Language Processing (NLP), these are analysed and divided into individual sections and headings. Each section is made available in the internal system and provided with a keyword search.

If a service employee is now on site at an appointment and is looking for a solution for an exact machine type, they can use the keyword search on their tablet or smartphone to explicitly search for the machine number and find suggested solutions. An encrypted endpoint is provided for this purpose.

By adding and linking the new service reports, a knowledge database is eventually created that continues to grow.

PROJECT STATUS

The model is being developed as part of the Service-Meister project.

REQUIREMENTS

Extensive collection of technical documents such as machine manuals, service reports.

AVAILABILITY

Upon request.



SPECIFICATION

	Input data	Pre-processing	Data storage	Algorithms	Interfaces
High-level description	Technical documents, PDF, WORD, TXT	Scan in documents/parse	Central storage, intranet	NLP (add more detailed algorithms)	Collaboration Services, i.e. consuming third services
Configurability	Select data source (address, access data)			None yet, output format planned	
Technical Implementation	Reading in the documents via REST	Python, Kubernetes	File system unknown, add	Python Script, Kubernetes	REST-API
Specific example from the speedboat project	Technical description of a synchronous motor	Document about the synchronous motor is available as processable text	Single text file for coupling synchronous motor with gearbox on file system	Provides grammatical and linguistic text blocks on motor, gear, coupling and their keywords	Third-party system submits request for coupling of a synchronous motor with an industrial gear unit

