



# YOUR PARTNER FOR SUCCESSFUL AI PROJECTS





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# COMPANY PROFILE

At makandra, we stand for customized solutions that are efficiently and purposefully aligned with our customers' individual processes and needs. Every piece of software we develop is built with the goal of creating genuine added value and integrating seamlessly into existing workflows.

Our clients benefit from our deep technical expertise: We are passionate engineers who master our craft down to the finest detail. For 17 years, we have reliably delivered projects on time and within budget – without exception.

In the meantime, we have established a dedicated AI team that continuously explores new models and innovations to provide our customers with modern, future-proof solutions.

15+

YEARS OF EXPERTISE

200+

PROJECTS

50+

SPECIALISTS

**ALL-IN-ONE SOLUTION:**  
UI/UX, AI, DevOps, Web  
Development



BOSCH



ZEITUNG ONLINE



SIEMENS



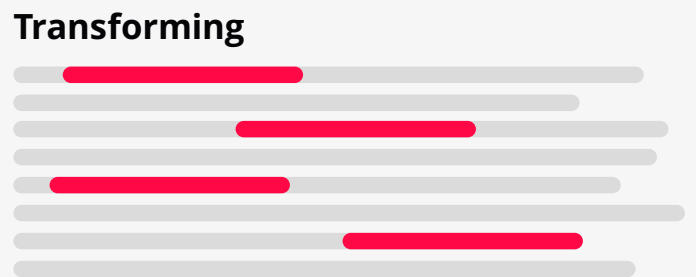
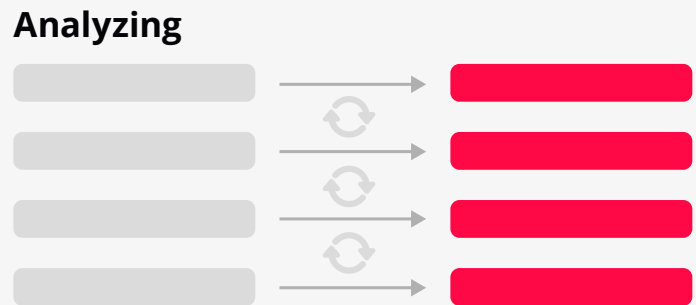
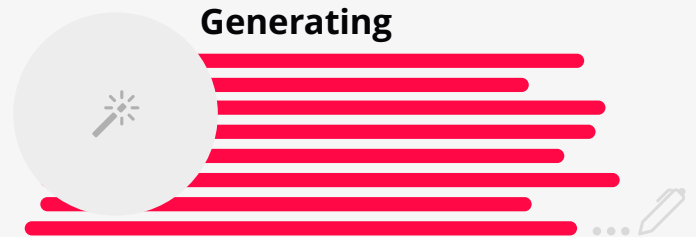
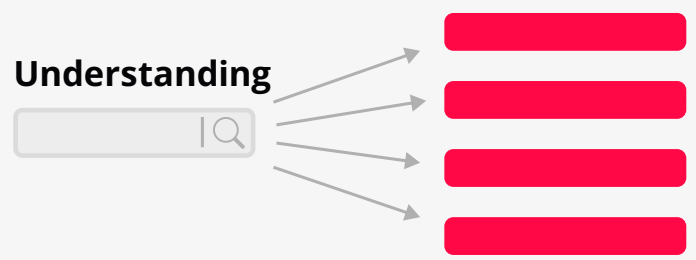
Klarna.



# LLM: HIGH-PERFORMANCE USE CASES

AI models deliver the most value when companies work with complex internal knowledge and sensitive documents, such as in technical documentation, quality management, compliance, or knowledge bases. AI supports employees in retrieving information faster, generating reports, and automating recurring communication. In practice, we are already developing highly specific applications, such as analyzing goods receipt notes, automating responses to customer inquiries, or performing plausibility checks on invoices.

At their core, our most frequent use cases always revolve around four key capabilities: understanding, generating, analyzing and transforming.



**„Local AI combines the best of both worlds: companies can deploy powerful AI models internally while ensuring that their sensitive data remains in their own hands.“**

**FABIAN RIMPL**  
CEO, makandra GmbH

## Case Study 1

# AI SEARCH WITH VECTOR DATABASES

**Industry:**  
IT Industry

**Company Size:**  
50+ Employees

**Technologies Used:**  
Ollama (formerly Llama; now using Qwen for text and mxbai-embed-large for embeddings), pg\_vector, nearest\_neighbor

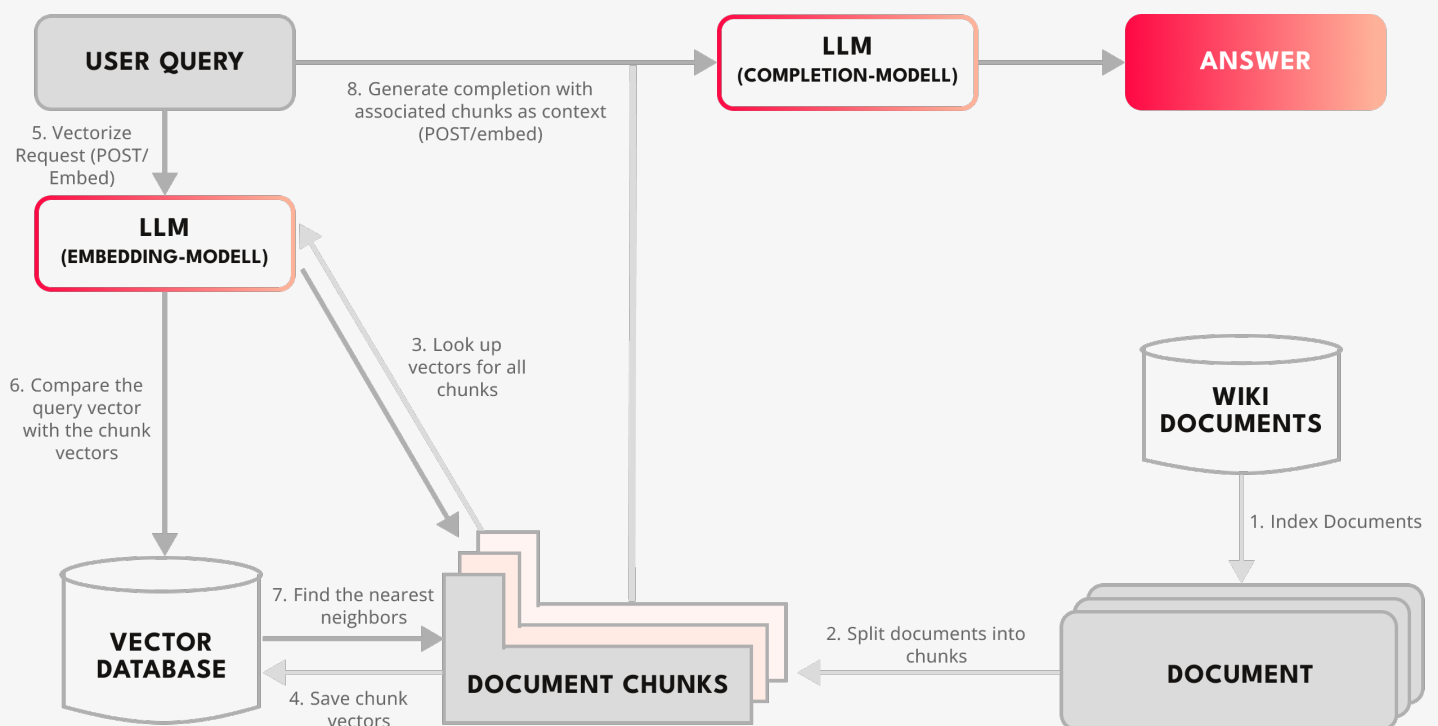
### Customer Challenge:

The company possesses a vast amount of internal knowledge sources, including technical documentation, internal records, and project data spread across various systems and folder structures. While this knowledge is technically available, it remains difficult to access during day-to-day operations.

### Our Solution:

We implemented an AI-powered knowledge platform in the form of a chatbot based on the principle of Retrieval-Augmented Generation (RAG).

The application indexes internal documents and project information, providing them to the chatbot as context. Employees can ask questions in natural language, similar to a standard chat, and receive accurate, easy-to-understand answers. In addition, relevant sources from internal documents are referenced, ensuring that all answers remain transparent and verifiable at all times.



## Case Study 2

# AI SEARCH WITH OPENSEARCH

### Industry:

Medical / Healthcare

### Company Size:

120 Employees

### Technologies Used:

OpenSearch, PostgreSQL Database, GPT

### Customer Challenge:

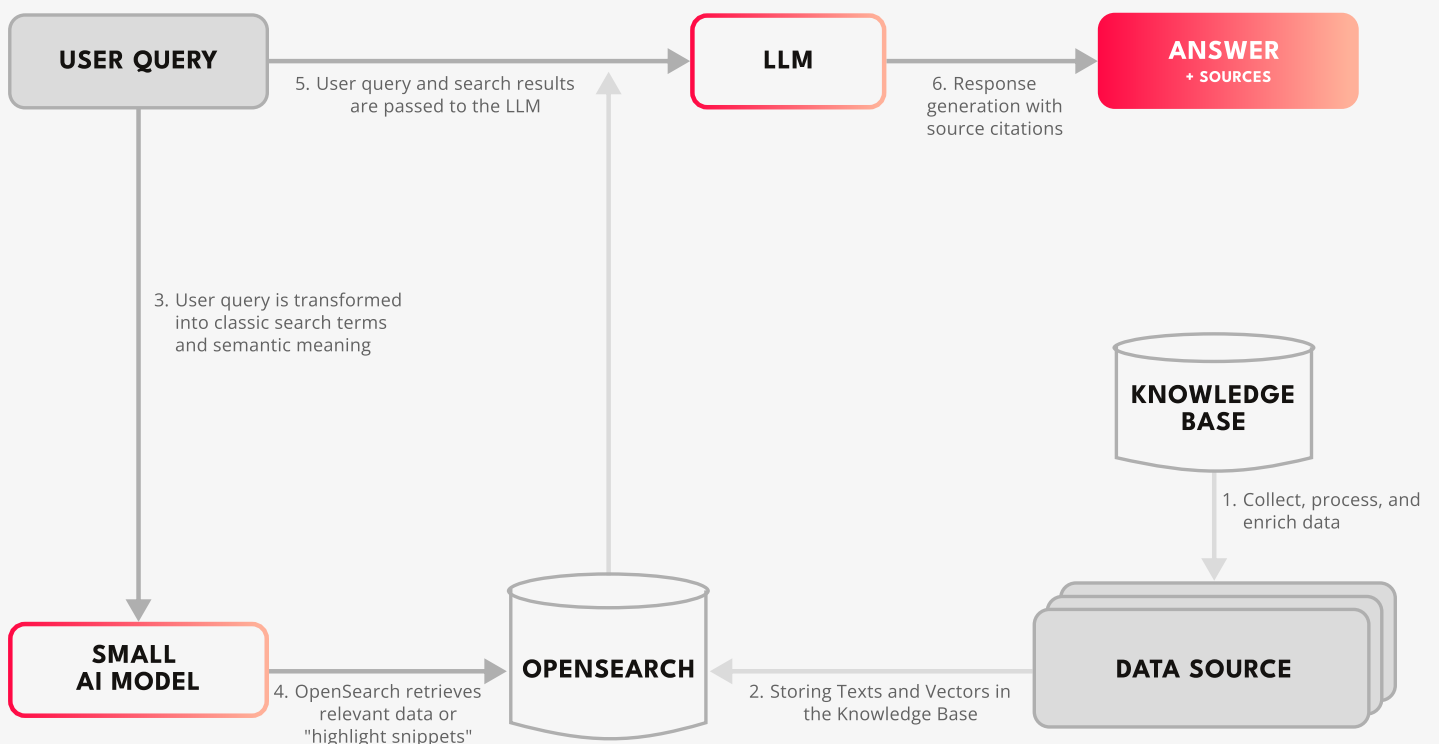
The customer's software is used by a wide range of clients and supported by extensive online documentation. However, the existing search functionality and the ability to find relevant information quickly and effectively have significant room for improvement.

Users often spend too much time searching for specific details and are unwilling to click through complex documentation structures or multiple pages. As a result, support requests are frequently submitted even though the required information is already documented.

### Our Solution:

A compact, AI-powered assistant within the application: Customers visiting the wiki find an unobtrusive widget. They can ask a question and receive an instant answer based on the available articles, including citations, or a notification if no information was found.

The application is delivered via a provided iFrame widget. This ensures the solution remains closely linked to the users' familiar working context.



## Case Study 3

# DATA EXTRACTION FROM GOODS RECEIVED NOTES

**Industry:**  
Aerospace

**Company Size:**  
500 Employees

**Technologies Used:**  
Ollama (Minstral Vision), Tesseract OSD (Orientation and Script Detection)

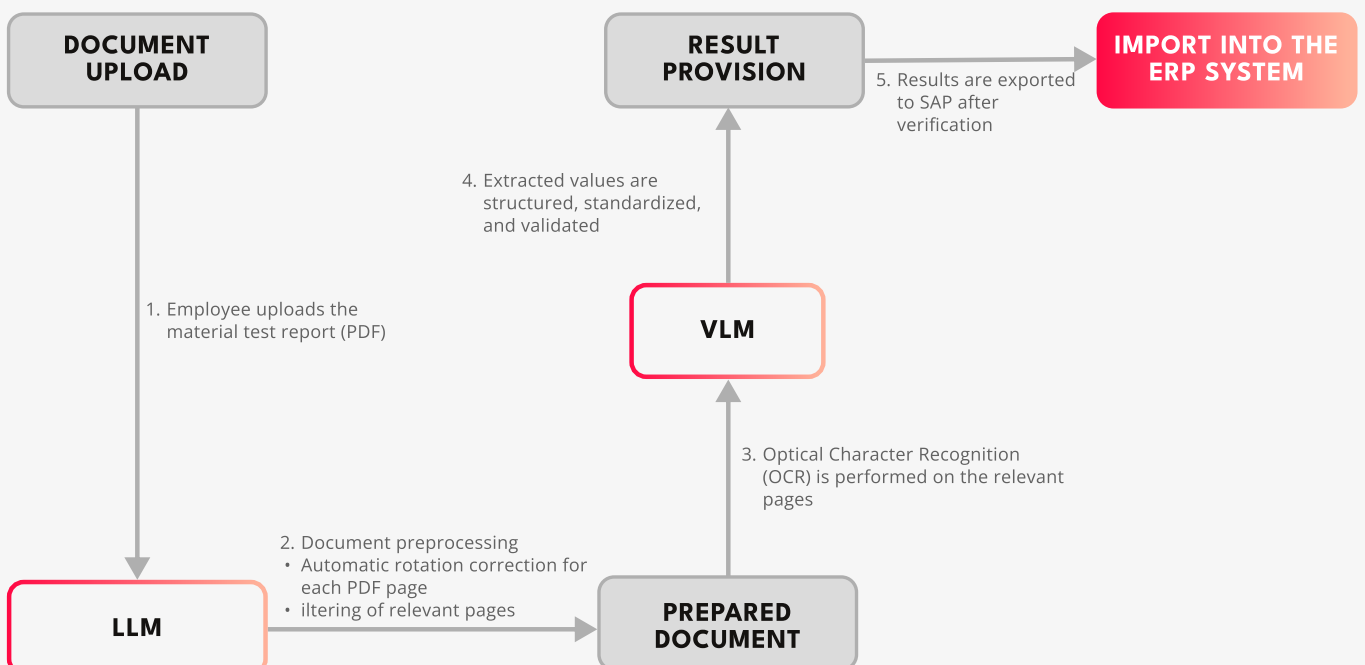
### Customer Challenge:

The company regularly receives inspection and quality documents from its suppliers in PDF format. These documents are non-standardized, vary significantly in structure depending on the supplier and contain complex information such as chemical analyses, mechanical tests, and various metadata. Currently, all data must be transferred manually to SAP. This process is time-consuming, highly repetitive, and prone to errors due to manual data entry.

### Our Solution:

We developed an AI application that enables the automatic recognition, extraction, and structuring of relevant information from supplier PDFs.

Users upload the supplier documents via the application. The system processes the PDF fully automatically and extracts the required content – including complex, nested table structures – into a valid, machine-readable XML format. This format is specifically designed for direct import into SAP. Through this automation, manual work steps are almost entirely eliminated.



## Case Study 4

# REPETITIVE DOCUMENT FILING

**Industry:**  
Aerospace

**Company Size:**  
500 Employees

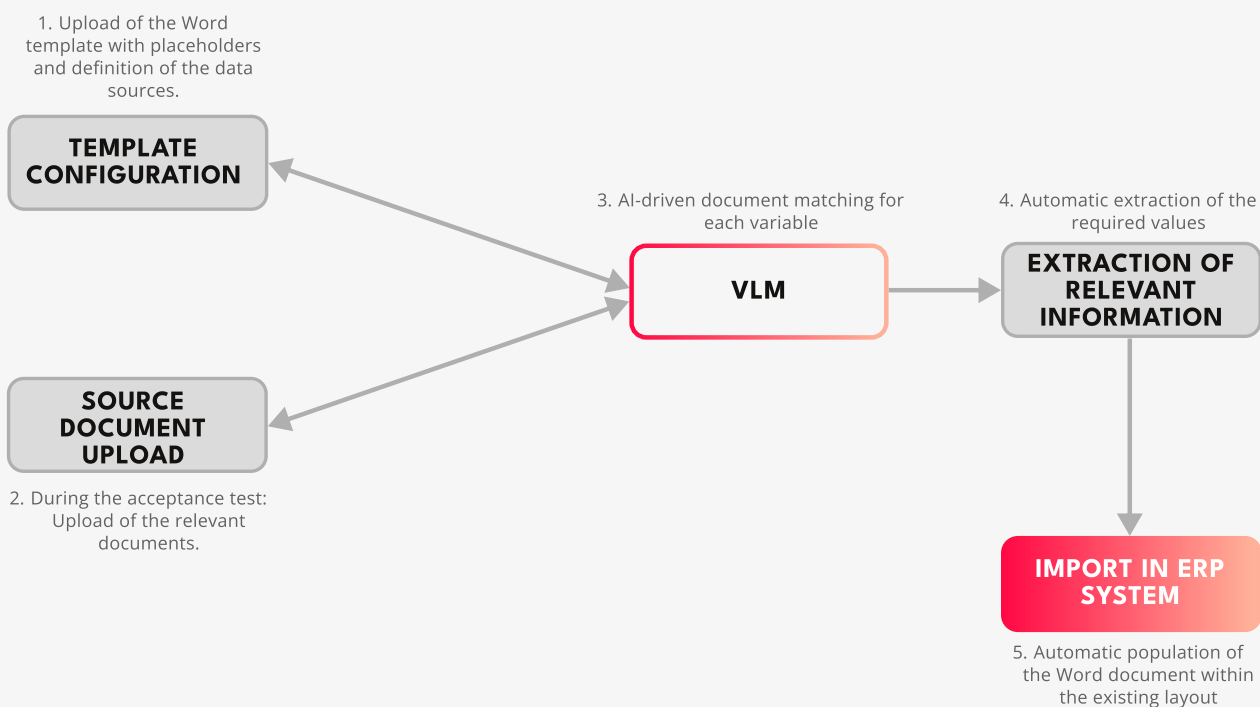
**Technologies Used:**  
Ollama (Minstral Text for intelligent routing, Minstral Vision for data extraction), Sablon

### Customer Challenge:

For every customer acceptance test, the quality assurance team must gather extensive information from various source documents, including inspection reports, protocols, or technical logs. Currently, this data is manually entered into a predefined Word document. This process is time-consuming, repetitive, and prone to error. Furthermore, it requires detailed knowledge of which information is located in which specific document. The goal was to find a flexible solution that reduces manual effort without replacing existing templates.

### Our Solution:

We developed an AI-powered application that largely automates the creation of acceptance documents. Users perform a one-time upload of a Word template containing placeholders (variables) and define in which documents the respective information is typically located. For each acceptance test, any number of source documents can be uploaded. An intelligent router selects the appropriate document, an extractor reads the required values, and a generator automatically populates the Word document. The existing layout is fully preserved.



## Case Study 5

# DOCUMENT GENERATION

### Industry:

Legal and Business Consulting

### Company Size:

15 Employees

### Technologies Used:

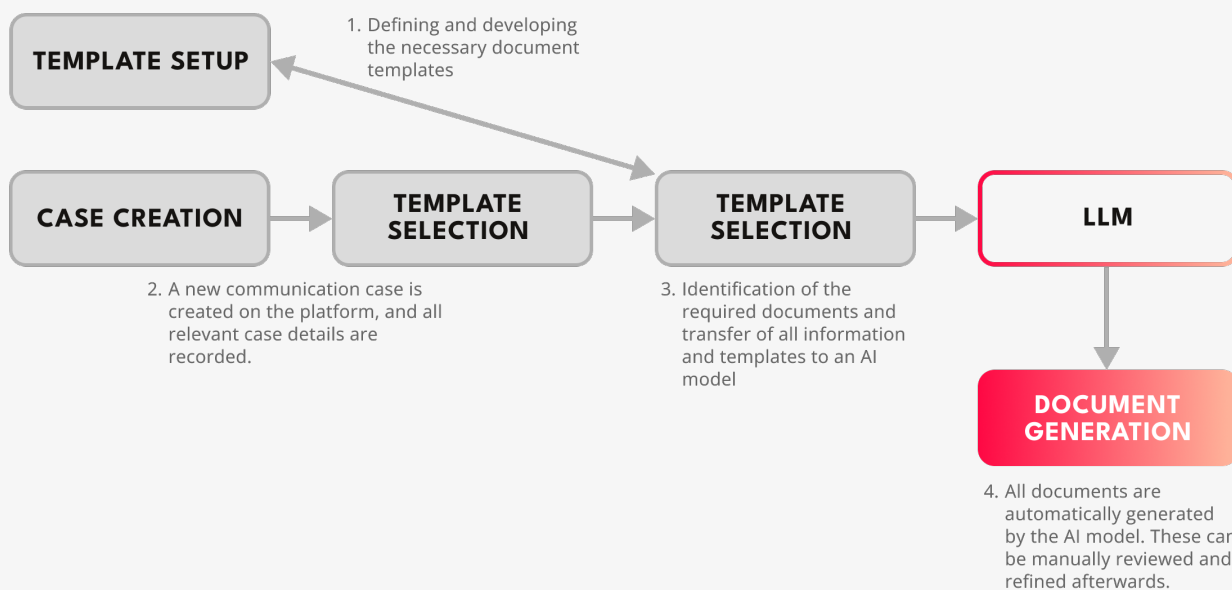
Ollama (Qwen text)

### Customer Challenge:

As a strategic communication consultancy, the client provides support in legally sensitive and exceptional situations, such as crises or litigation. Each case requires comprehensive communication suites with numerous audience-specific documents, ranging from press releases to internal memos and investor updates. The creation of these packages is highly time-consuming and is characterized by intensive editorial work. The client sought a solution that intelligently supports text generation, systematically leverages existing knowledge, and is operated entirely within a secure, local infrastructure.

### Our Solution:

We developed an AI-based platform that specifically supports communication consultancies in drafting texts for crises and exceptional situations. On this platform, templates for various document types can be created and reused. When a new case is initiated, employees select the appropriate templates, add case-specific information, and upload existing materials – even in unstructured formats. On this basis, initial text drafts are automatically generated by the AI, ensuring consistent tone and structure. These drafts serve as a solid working foundation and are subsequently reviewed, adjusted, and approved by the editorial team. The entire solution is operated locally and processes sensitive content exclusively within the client's own infrastructure.



## Case Study 6

# CUSTOMER SUPPORT: AUTOMATED EMAIL GENERATION

**Industry:**  
Biotechnology

**Company Size:**  
50 Employees

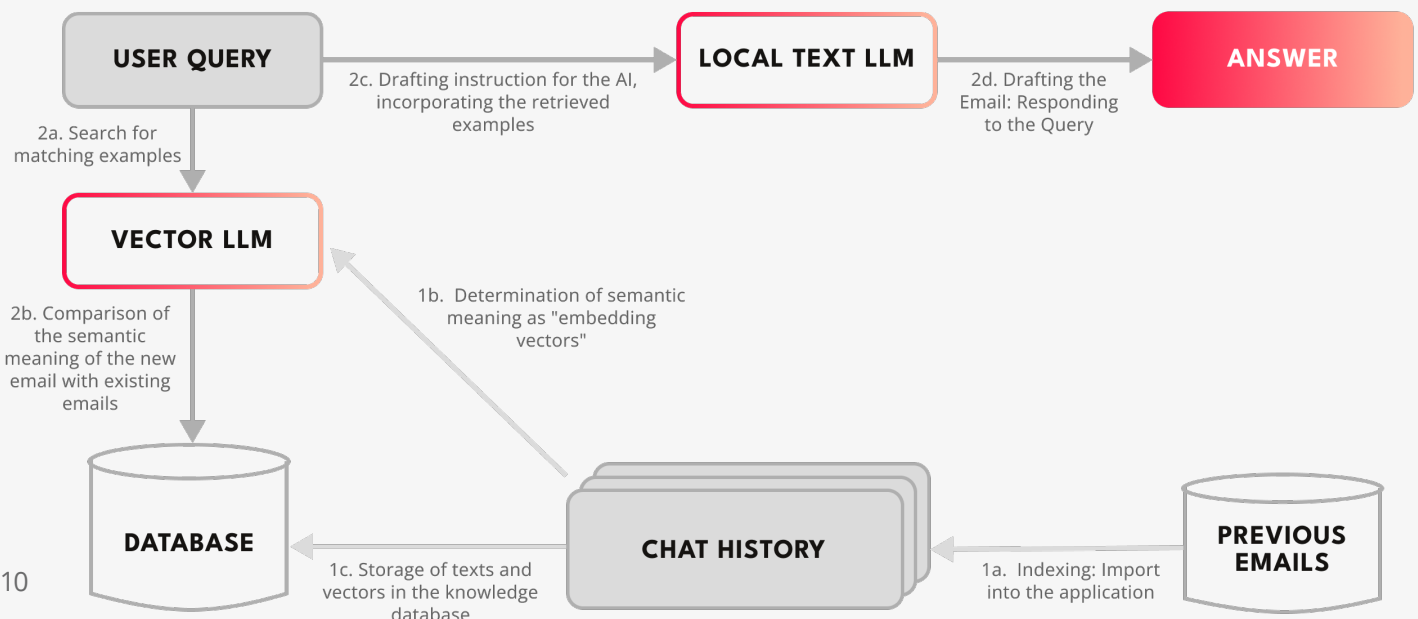
**Technologies Used:**  
Ollama, PostgreSQL database

### Customer Challenge:

A manufacturer with an extensive product portfolio regularly receives technical inquiries via email, many of which have already been answered multiple times in a similar form. Processing is handled in a decentralized manner by product managers in the respective departments, who rely on historical email threads, product data sheets, and web research. Despite a powerful archive search, research is time-consuming and ties up valuable skilled staff. The wide range of the product portfolio further complicates keeping all details readily available at all times. Recurring questions about possible applications or causes of errors therefore result in a high level of manual effort, while the volume of inquiries continues to grow.

### Our Solution:

We are developing an AI-powered knowledge platform based on a structured RAG approach (Retrieval Augmented Generation), which intelligently processes and leverages historical email communication. Existing conversations are automatically cleaned, analyzed, and converted into structured, anonymized question-answer pairs. These are categorized and stored as semantic vectors. New inquiries undergo the same normalization process and are semantically matched against the existing knowledge base. On this basis, the system generates a tailored draft response oriented toward previously validated technical solutions. The final review and approval are deliberately left to the product manager, ensuring that professional quality assurance is maintained.



# GDPR-COMPLIANT DEPLOYMENT OPTIONS FOR AI SOLUTIONS

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There are various hosting models for operating an AI application, depending on the required level of protection and the available budget.

## Fully On-Premises (Self-Hosted)

The AI application is operated entirely within the company's own infrastructure. It is ensured that no data leaves the company.



**Advantages** are maximum control and the highest level of data protection.



**Suitable for:** Companies with very high security requirements, e.g., regarding sensitive personal data or IP-critical areas.

## Open-Source Models in Regional Data Centers

An open-source AI model (e.g., Llama or Mistral) is operated within a German or regional data center. The hosting setup is customized individually to meet specific requirements. It is ensured that all data remain within the region.



**Advantages** are high levels of control over both data and architecture.



**Suitable for:** Companies that wish to avoid using cloud services by international providers and place a high priority on data protection.

## The European Microsoft Solution: Microsoft Azure

Current OpenAI models (e.g., GPT-5\*) are operated via Microsoft Azure within EU data centers. Data processing can be restricted to Europe.



**Advantages** lie in the combination of access to the most powerful AI models and a rapid project start without the need for hardware investments.



**Suitable for:** Companies that are already heavily integrated into the Microsoft ecosystem and are seeking a high-performance, scalable, and a pragmatic path to implementation.

# FROM **STARTUPS** TO **ENTERPRISES** – WE KNOW YOUR INDUSTRY

Every industry has its own unique requirements, and that is precisely what makes our work so exciting. We develop tailored solutions for startups, medium-sized businesses, large enterprises, and public institutions. We apply our technical excellence across a wide range of environments, ensuring that technology delivers results exactly where it is needed most.



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I would recommend makandra without hesitation. Our collaboration is defined by a deeply professional composure and high-caliber execution. They are remarkably innovative and agile, yet always stay on schedule. They are consistently one step ahead, and their work is both visually and technically inspiring.

**MICHAEL WOYWODE**

Director of Digital Solutions, Learning & Communication  
at GREENZERO





## GET IN TOUCH

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Ready to elevate your digital strategy? Benefit from high-performance web applications, continuous optimization, and expert strategic consulting. We are your trusted partner for complex digital projects.



**Dr. Thomas Eisenbarth**  
CEO

thomas.eisenbarth@makandra.de  
+49 (0) 821 58866 184

Since co-founding makandra in 2009, Dr. Thomas Eisenbarth has shaped the company's strategic direction. He is committed to delivering sustainable, technical first-class solutions and an open, collaborative leadership style.



**Fabian Rimpl**  
CEO

fabian.rimpl@makandra.de  
+49 (0) 821 58866 167

Fabian Rimpl joined makandra in 2019 and has served as Co-Managing Director since 2025. He leads Business Development and Sales, providing strategic guidance to companies in identifying the right digital solutions.



**We're passionate about technology and hands-on experts – sparring partners, and idea generators.**

**We challenge assumptions and give honest, transparent advice.**

**We share our knowledge and create new things together.**



**makandra GmbH**

Melli-Beese-Straße 5

86159 Augsburg

Phone: +49 821 58866 180

Email: [info@makandra.de](mailto:info@makandra.de)