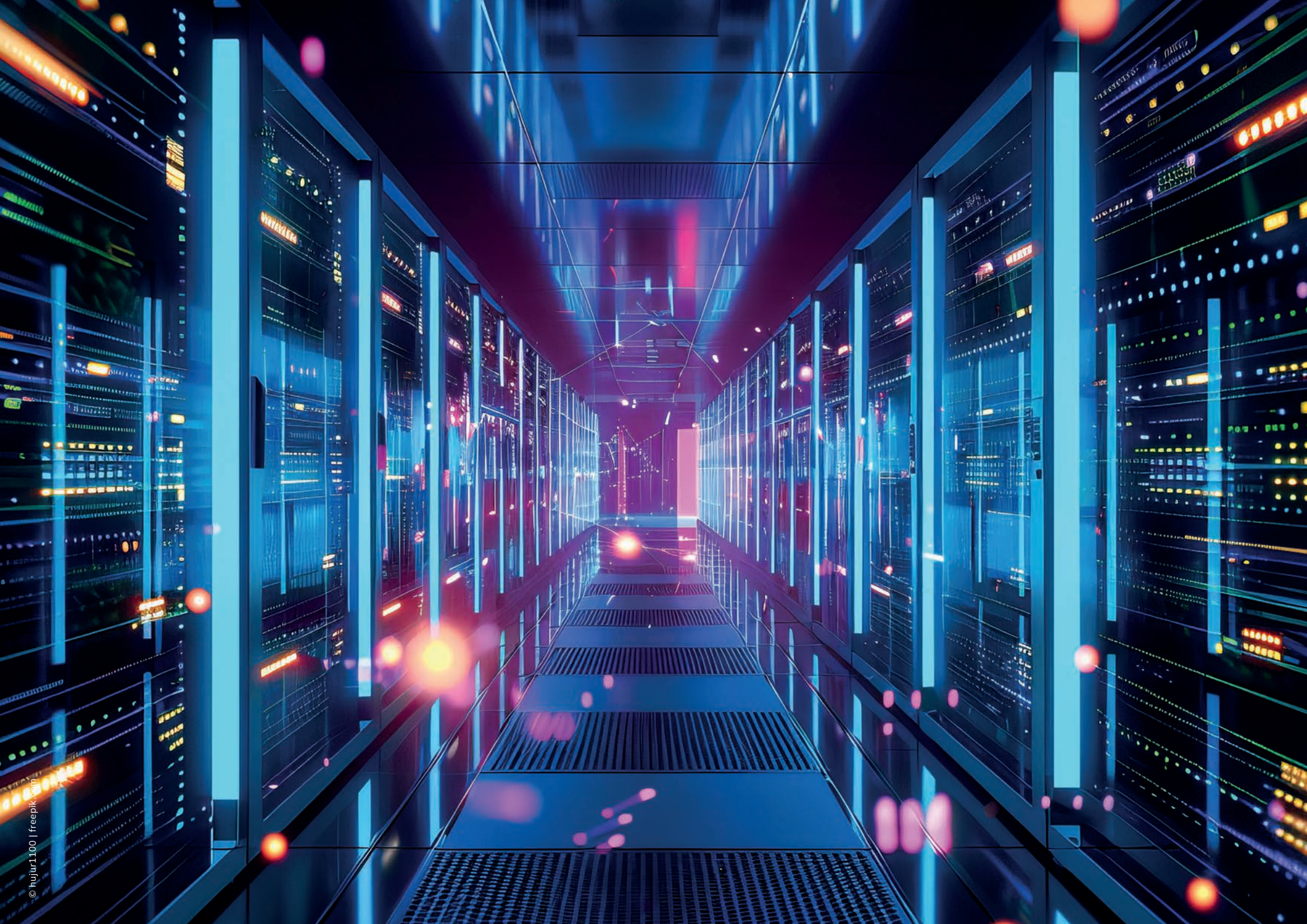
abat

ai Artificial Intelligence with a vision.

OVERview

Logistics reimagined:
Intelligent. Resilient. Automated.

© Pangsiri | stock.adobe.com



© hujur1100 | freepik.com

Our AI use cases

Supply Chain

Inventory from the air: AI counts stock in outdoor block storage 04

AI counts, SAP posts: Automated inventory processes 06

Keep track of returnable inventory at all times thanks to AI 08

Rethinking SAP TM – AI Agents Plan, Optimize, and Understand Language 10

Detect disruptions before they occur – AI for resilient supply chains 13

Documents / Document AI

AI agents for responsible product and supplier decisions 14

Less manual verification, higher process quality: Document processing with AI 16

SAP-Migration / AI Shore

Intelligently cleaning master data – AI agents for SAP migrations 18

Unlocking master data – AI identifies what is missing in the system 19

Leverage project knowledge – LLM chatbots with RAG 20

Automatically generate documentation – AI Shore & AI Agents accelerate knowledge transfer 23

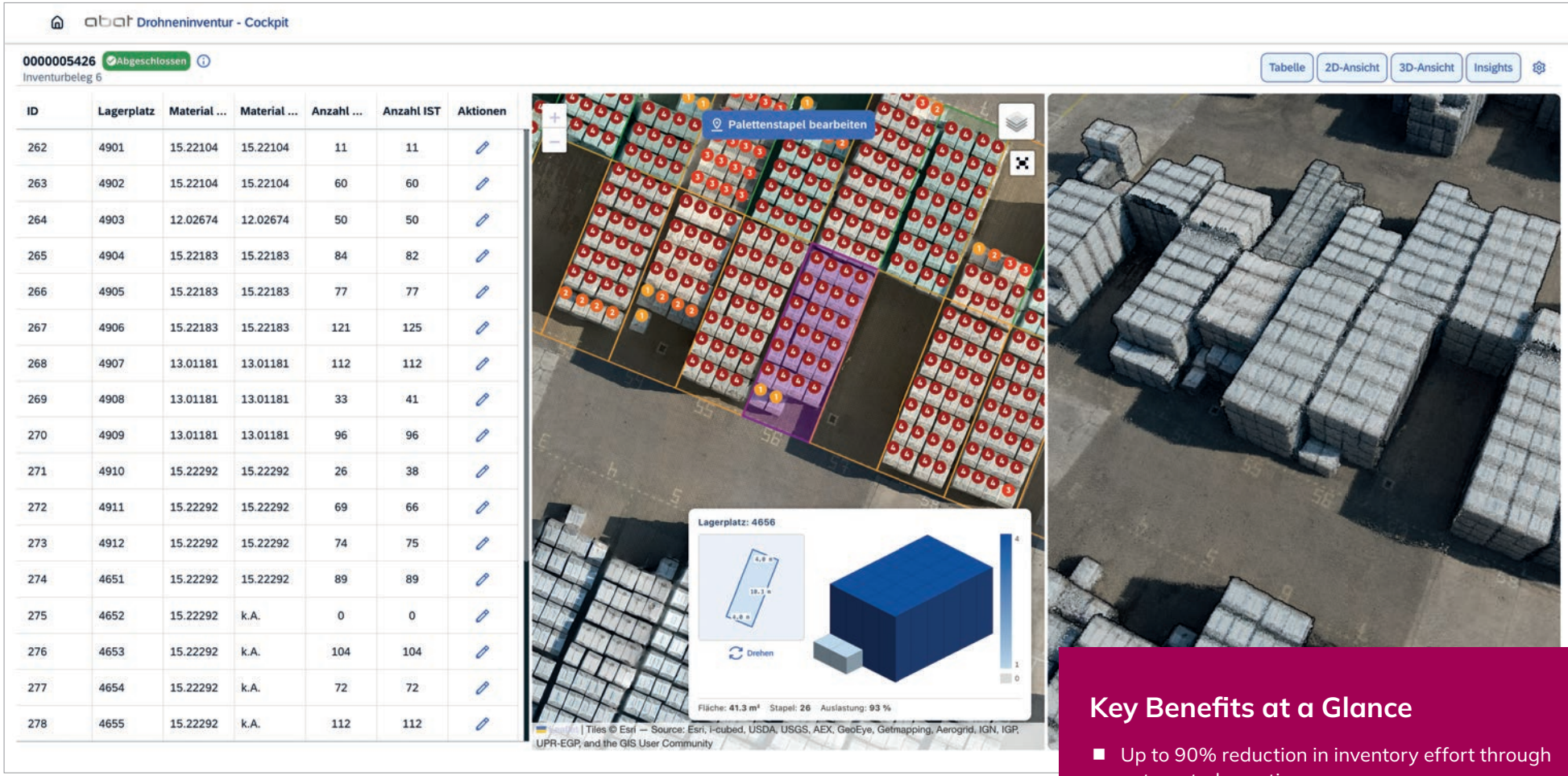
Inventory from the air: AI counts stock in outdoor block storage

Inventories in outdoor bulk storage facilities are time-consuming, labor-intensive, and disrupt ongoing operations. Nevertheless, they are required by law and essential for transparency and inventory accuracy. abat demonstrates how this conflict of objectives can be resolved using AI and drone technology.

abat has developed an AI-based inventory solution that largely automates the manual counting process. Drones capture the warehouse from front and bird's-eye views, while AI models use the images to automatically recognize, classify, and count pallets and products – all without RFID tags or manual walks through the warehouse.

The solution processes real-world warehouse conditions and combines multiple perspectives to reliably capture even stacked inventory. The results are documented, presented in a traceable format, and can be directly integrated into SAP-based inventory processes. This creates a digital inventory with visual proof, high accuracy, and minimal staff involvement.

In practice, it has been shown that a single drone operator is sufficient instead of multiple counting teams. The effort required for inventory is reduced by up to 90%, while simultaneously increasing transparency and repeatability.



The Inventory Cockpit combines drone imagery with a digital twin of the warehouse. The count results are displayed both in tabular form and graphically at the respective storage location. This enables direct verification and, if necessary, correction of the data with just a few clicks. An integrated 3D model documents the current warehouse status and illustrates the exact stacking of individual blocks.

Key Benefits at a Glance

- Up to 90% reduction in inventory effort through automated counting
- No manual counting teams – just a drone and one person
- SAP-integrated & audit-proof thanks to image documentation

AI counts, SAP posts: Automated inventory processes

Whether cables, pipes, or long materials: Stock locations with high quantities are particularly time-consuming to inventory in practice. Manual counting is time-consuming, error-prone, and simply tedious for employees. Especially with cantilever racks containing several thousand units per storage location, traditional inventory processes quickly reach their limits.

abat has therefore developed an AI-based solution for mobile inventory capture that reduces counting to a minimum. The process is simple and practical: The storage location is recorded using a handheld or mobile device, then a photo is taken and sent to the AI. The AI analyzes the image, recognizes the stored objects, and automatically counts even very large quantities – for example, several thousand pipes at a single storage location.

The determined inventory is then transferred directly to SAP, where it can be used for inventory counts, inventory adjustments, or other logistics processes. Manual counting, recounting, or estimating can be completely eliminated.

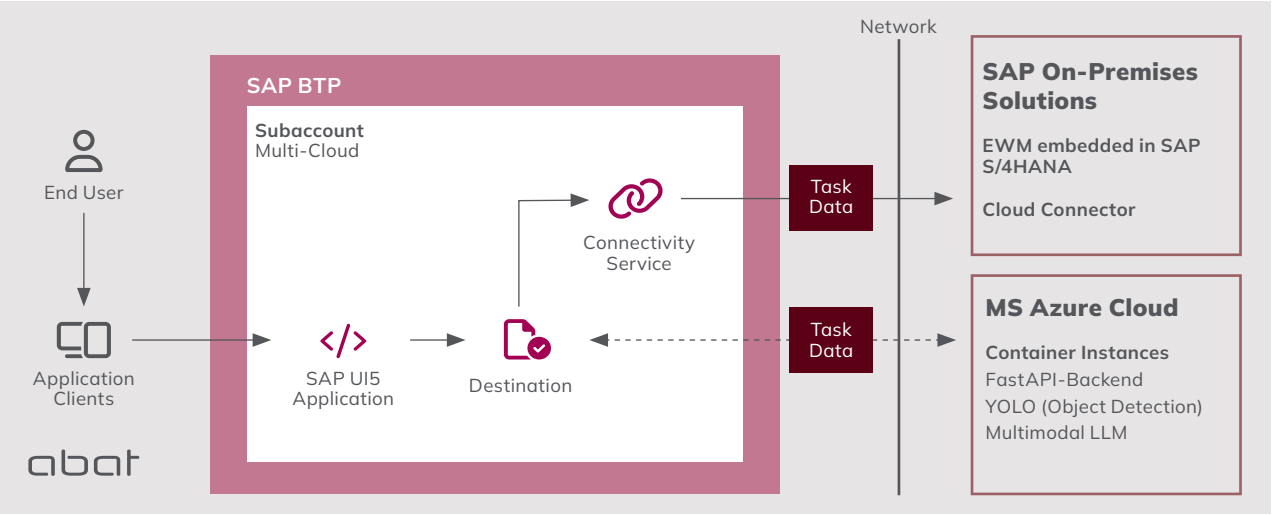
This approach can be used not only for inventory but also for goods receipt. Here, too, delivered materials can be captured via photo, automatically counted, and immediately posted.

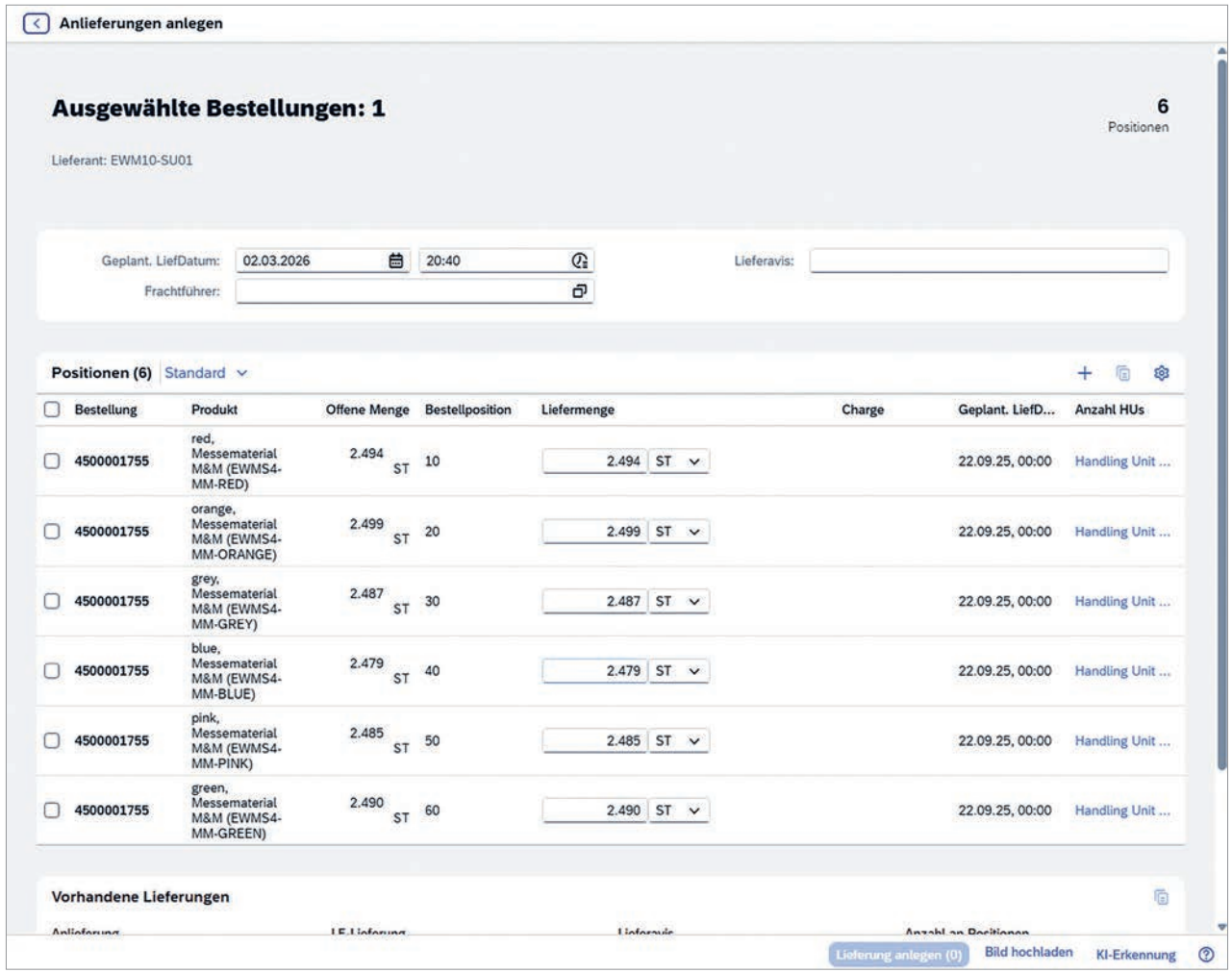
This creates a reliable, digitally recorded inventory as soon as the goods arrive – quickly, easily, and without additional manual effort.

The solution is particularly well-suited for cantilever racks and storage locations with homogeneous materials that are difficult to count. It integrates seamlessly into existing warehouse processes and ensures faster inventory counts, higher data quality, and a significant reduction in the workload for employees – without additional hardware or complex retrofits.

Key Benefits at a Glance

- No more manual counting: AI counts thousands of units via photo
- Fast mobile data capture directly at the storage location or in goods receiving
- Direct SAP integration for up-to-date and reliable inventory levels




Anlieferungen anlegen
Ausgewählte Bestellungen: 1
6
Positionen
Lieferant: EWM10-SU01
Geplant. LiefDatum: 02.03.2026 20:40
Lieferavis:
Frachtführer:
Positionen (6) Standard
Bestellung Produkt Offene Menge Bestellposition Liefermenge Charge Geplant. LiefD... Anzahl HUs
4500001755 red, Messematerial M&M (EWMS4-MM-RED) 2.494 ST 10 2.494 ST 22.09.25, 00:00 Handling Unit ...
4500001755 orange, Messematerial M&M (EWMS4-MM-ORANGE) 2.499 ST 20 2.499 ST 22.09.25, 00:00 Handling Unit ...
4500001755 grey, Messematerial M&M (EWMS4-MM-GREY) 2.487 ST 30 2.487 ST 22.09.25, 00:00 Handling Unit ...
4500001755 blue, Messematerial M&M (EWMS4-MM-BLUE) 2.479 ST 40 2.479 ST 22.09.25, 00:00 Handling Unit ...
4500001755 pink, Messematerial M&M (EWMS4-MM-PINK) 2.485 ST 50 2.485 ST 22.09.25, 00:00 Handling Unit ...
4500001755 green, Messematerial M&M (EWMS4-MM-GREEN) 2.490 ST 60 2.490 ST 22.09.25, 00:00 Handling Unit ...
Vorhandene Lieferungen
Lieferung anlegen (0)
Bild hochladen
KI-Erkennung

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38

Keep track of returnable inventory at all times thanks to AI

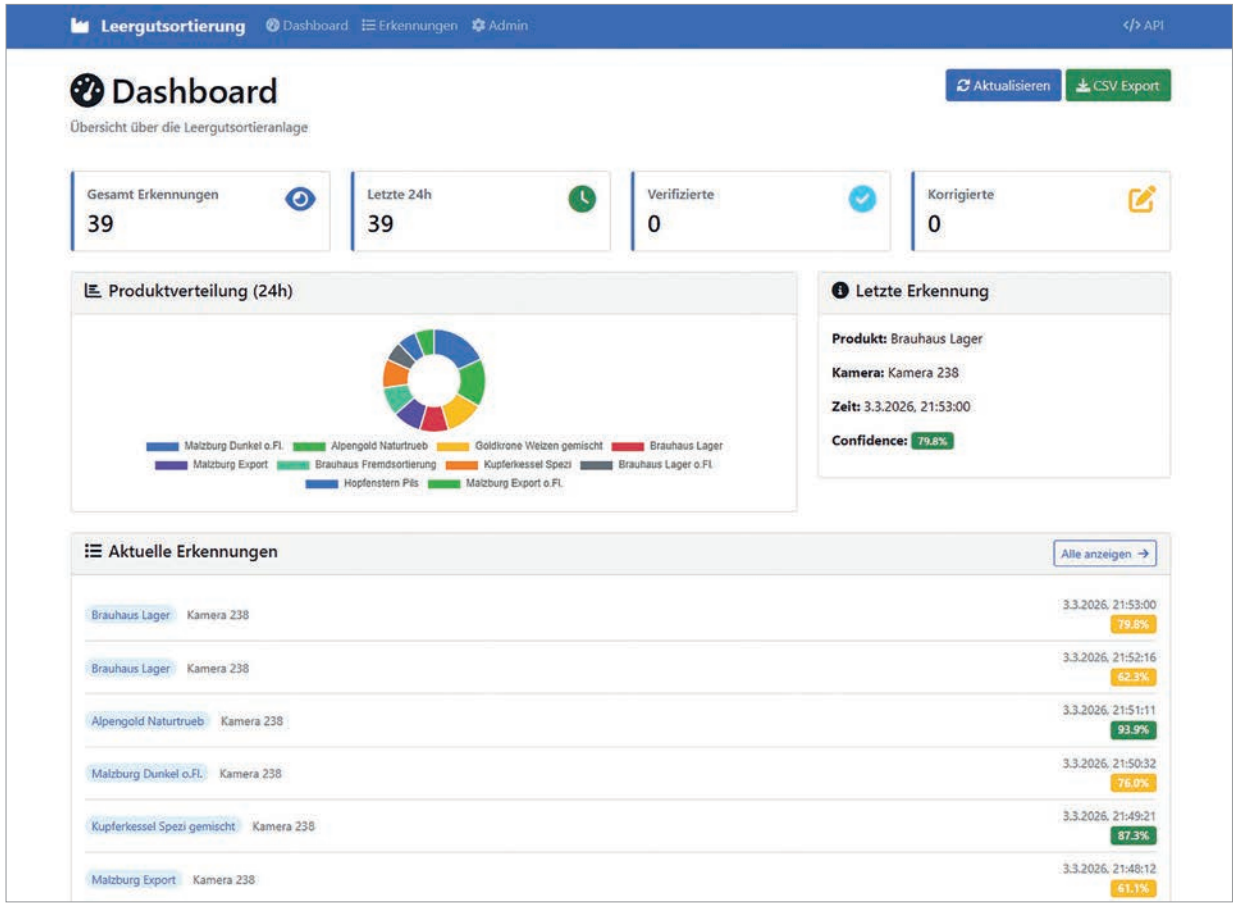
Empty container processes are complex, fast-paced, and often difficult to manage transparently. Different bottles, changing containers, and high throughput rates make reliable inventory tracking challenging. Manual checks or random inspections often provide only limited insight into actual inventory quality.

For a brewery, abat has implemented an AI-powered solution for automated empty container tracking. Fixed industrial cameras were installed along the empty container sorting line, capturing each pallet in real time as it leaves the line. The AI analyzes the image data and reliably identifies which product is on the pallet, whether the correct bottles are included, and how high the pallet is stacked.

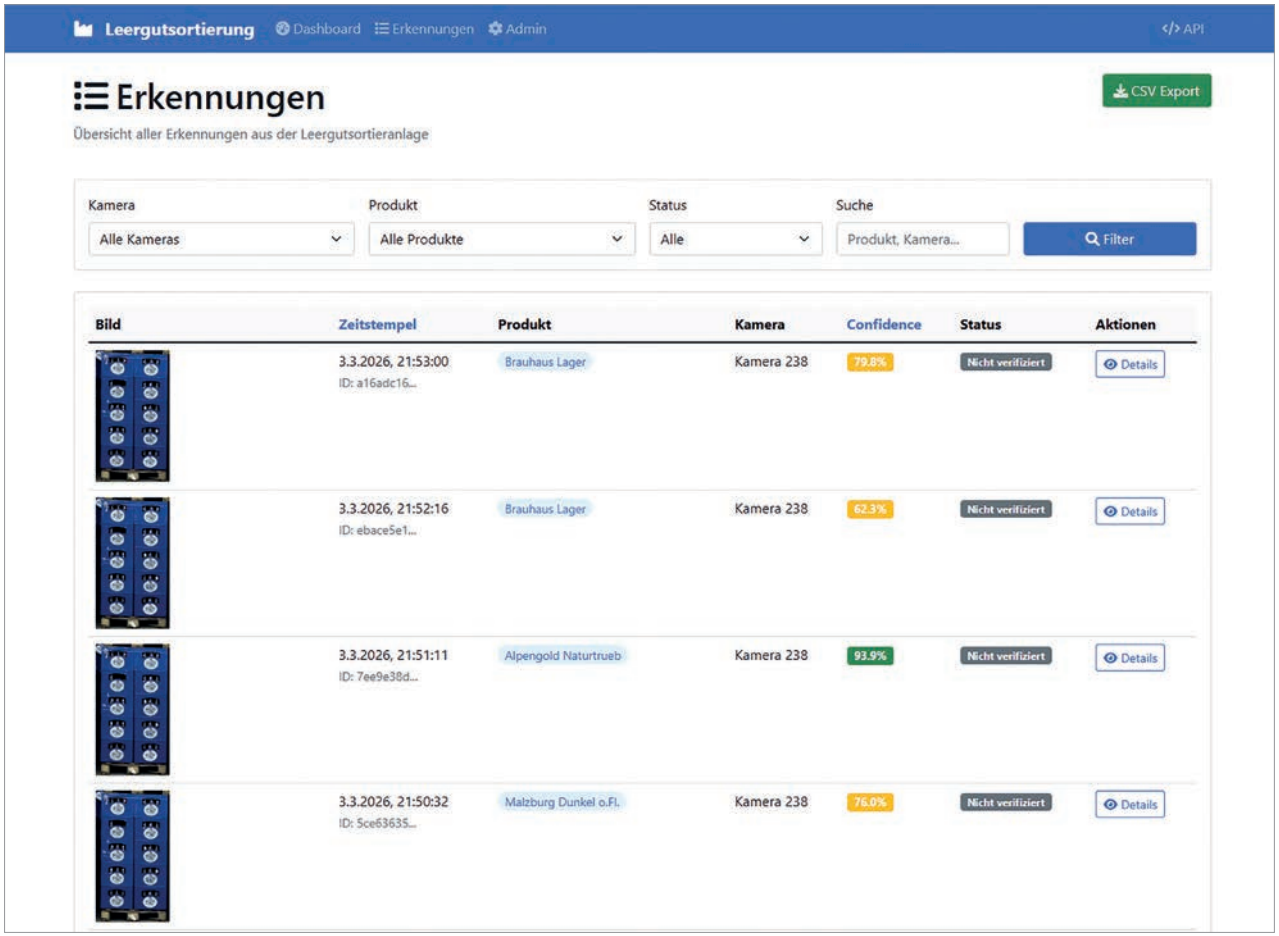
The captured information is visualized and clearly presented in a central tool. Depending on requirements – whether time-controlled or event-based – the data can be exported and transferred directly into SAP systems. This creates a consistent, automated data foundation without manual data entry steps.

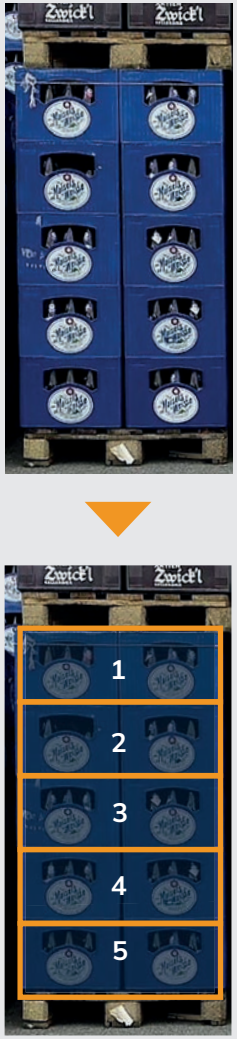
Key Benefits at a Glance

- Real-time detection of returnable pallets with product and quality inspection
- Significantly higher inventory quality and full transparency
- Scalable & SAP-integratable for multiple lines and locations



The result is significantly improved inventory quality, high transparency along the returnable container lines, and a robust foundation for operational and strategic decisions. The solution is scalable and can be easily adapted to additional returnable container lines or comparable use cases in intralogistics.





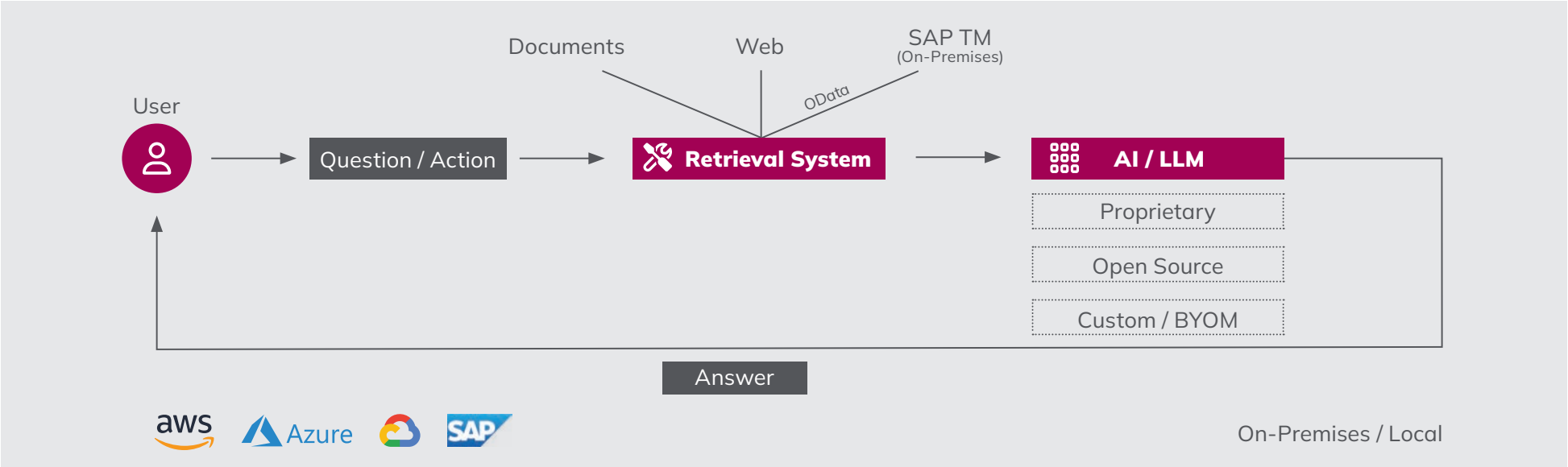
Rethinking SAP TM – AI Agents Plan, Optimize, and Understand Language

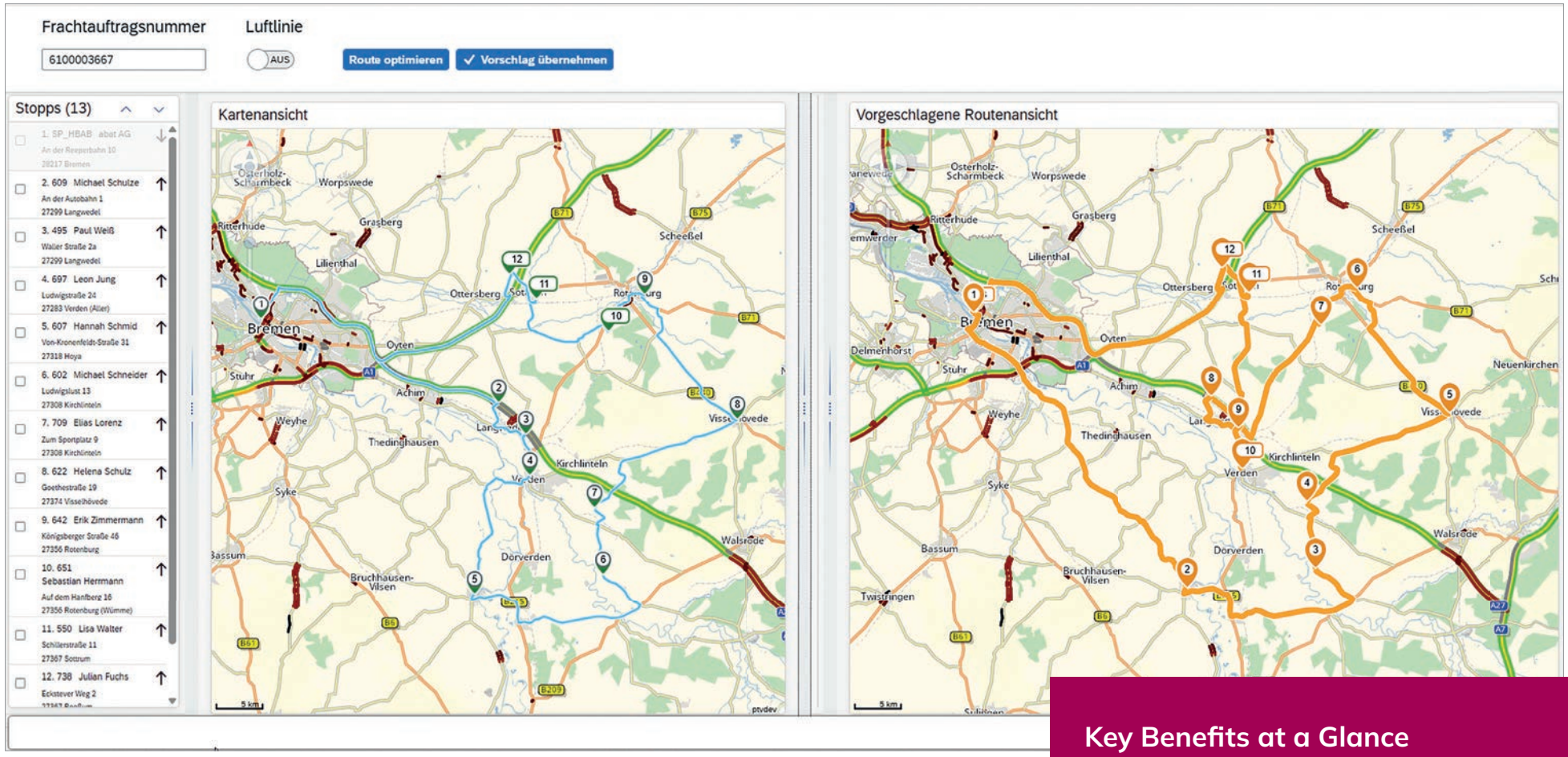
Transport management in SAP TM is powerful but complex. Route planning, rescheduling, and operational adjustments are often based on static rules – while valuable knowledge from manual interventions and dispatchers' experience remains untapped. At the same time, the system is technically complex and not very intuitive for many users.

abat integrates AI Agents directly into SAP TM to bridge this gap. The agents enable natural interaction with the system: dispatchers can describe what they want to achieve via text input – such as alternative routes, rescheduling, or prioritization – and the AI Agents automatically implement the necessary changes in SAP TM.

Furthermore, the agents use historical transport and rescheduling data to continuously improve route planning. Instead of following only fixed rules, they learn from previous manual decisions and optimize schedules dynamically and based on data. In this way, experiential knowledge is systematically harnessed and applied automatically.

The solution can be operated entirely on-premises, making it suitable even for sensitive system environments. Whether as a chat interface for day-to-day operations or as an automated optimization agent running in the background, AI Agents make SAP TM more intuitive, adaptive, and significantly more efficient.





Key Benefits at a Glance

- Natural language instead of complex user logic in SAP TM
- Adaptive route planning based on historical rescheduling
- On-premises capable and directly integrated into existing SAP TM processes

© Gorodenkoff | shutterstock.com

Detect disruptions before they occur – AI for resilient supply chains

In fast-paced supply chains, hours often determine the difference between production downtime and smooth operations. Especially in just-in-time and just-in-sequence scenarios, supplier failures or delayed components quickly lead to significant costs and risks. Traditional planning systems usually only react once bottlenecks are already noticeable.

Together with Volkswagen Mexico, abat has developed an AI-based forecasting model that predicts potential supplier failures early on. The focus is on production-critical, fast-moving components whose unavailability immediately jeopardizes manufacturing. The AI analyzes historical and current supply chain data, identifies patterns and deviations, and evaluates suppliers based on their risk of failure.

This allows critical suppliers to be identified early on, addressed specifically, and countermeasures to be initiated in a timely manner. The result: fewer unplanned disruptions, greater planning reliability, and significantly improved supply chain resilience.

In practice, Volkswagen Mexico is currently monitoring around 280 suppliers. After just a few iterations, the model achieved a forecasting accuracy of over 84% (F1 score) within a five-day horizon. The approach is scalable and can also be applied to other plants, regions, and industries.

Key Benefits at a Glance

- Early warning system for supplier disruptions instead of reactive crisis management
- Reduced production downtime and greater planning reliability
- Scalable AI solution for complex, SAP-integrated supply chains

AI agents for responsible product and supplier decisions

Product and supplier documents form the basis for safe, sustainable, and compliant products. Raw material certificates, ingredient lists, and supplier documentation contain critical information on chemical components, concentrations, allergens, or hazardous substances. Manually verifying and consistently evaluating this information is time-consuming and poses risks for EHS, compliance, and sustainability.

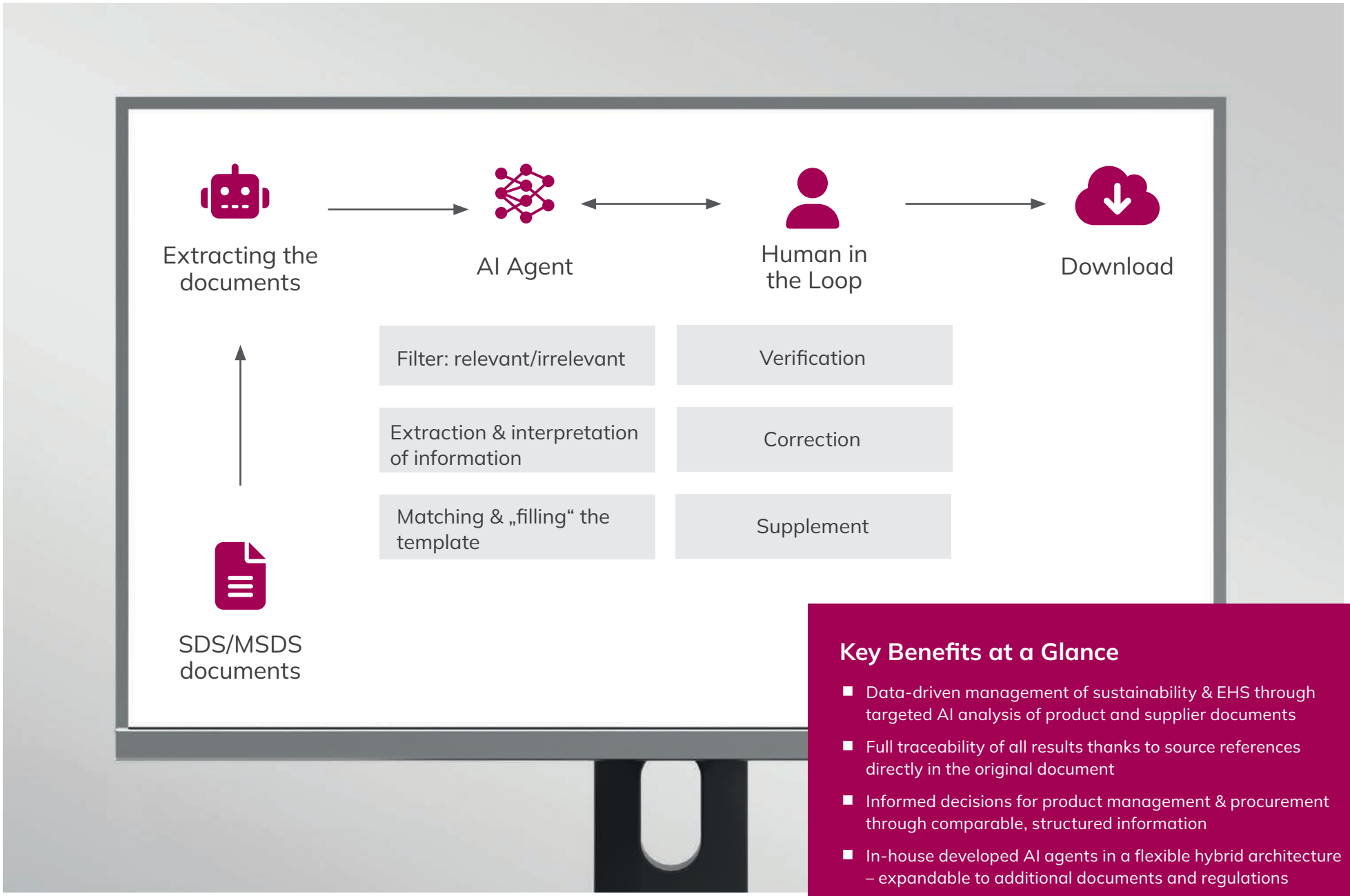
© Dmitrii Travnikov | freepik.com

For Mann & Schröder, abat has developed an application with several specialized AI agents that perform targeted analyses of product and supplier documents. The focus is not on bulk processing, but on the technically precise extraction of relevant information from complex documents such as raw material certificates.

Among other things, the AI agents identify details regarding fragrances, chemical ingredients, concentrations, certifications, and references to allergens or hazardous components. All extracted information is traceable at all times: The results are enriched with references to the respective source within the document, ensuring that decisions remain transparent, verifiable, and audit-proof.

In addition, another AI agent enables the structured comparison of products from multiple suppliers – for example, with regard to ingredients, EHS-relevant characteristics, or sustainability criteria. This provides product management and procurement with a well-founded, traceable basis for decision-making that supports both regulatory requirements and sustainable procurement goals.

The entire solution was developed in-house by abat and implemented in a hybrid architecture. The modular design allows for the flexible integration of additional document types, criteria, or regulations – while maintaining consistently high transparency and traceability of the results.



Key Benefits at a Glance

- Data-driven management of sustainability & EHS through targeted AI analysis of product and supplier documents
- Full traceability of all results thanks to source references directly in the original document
- Informed decisions for product management & procurement through comparable, structured information
- In-house developed AI agents in a flexible hybrid architecture – expandable to additional documents and regulations

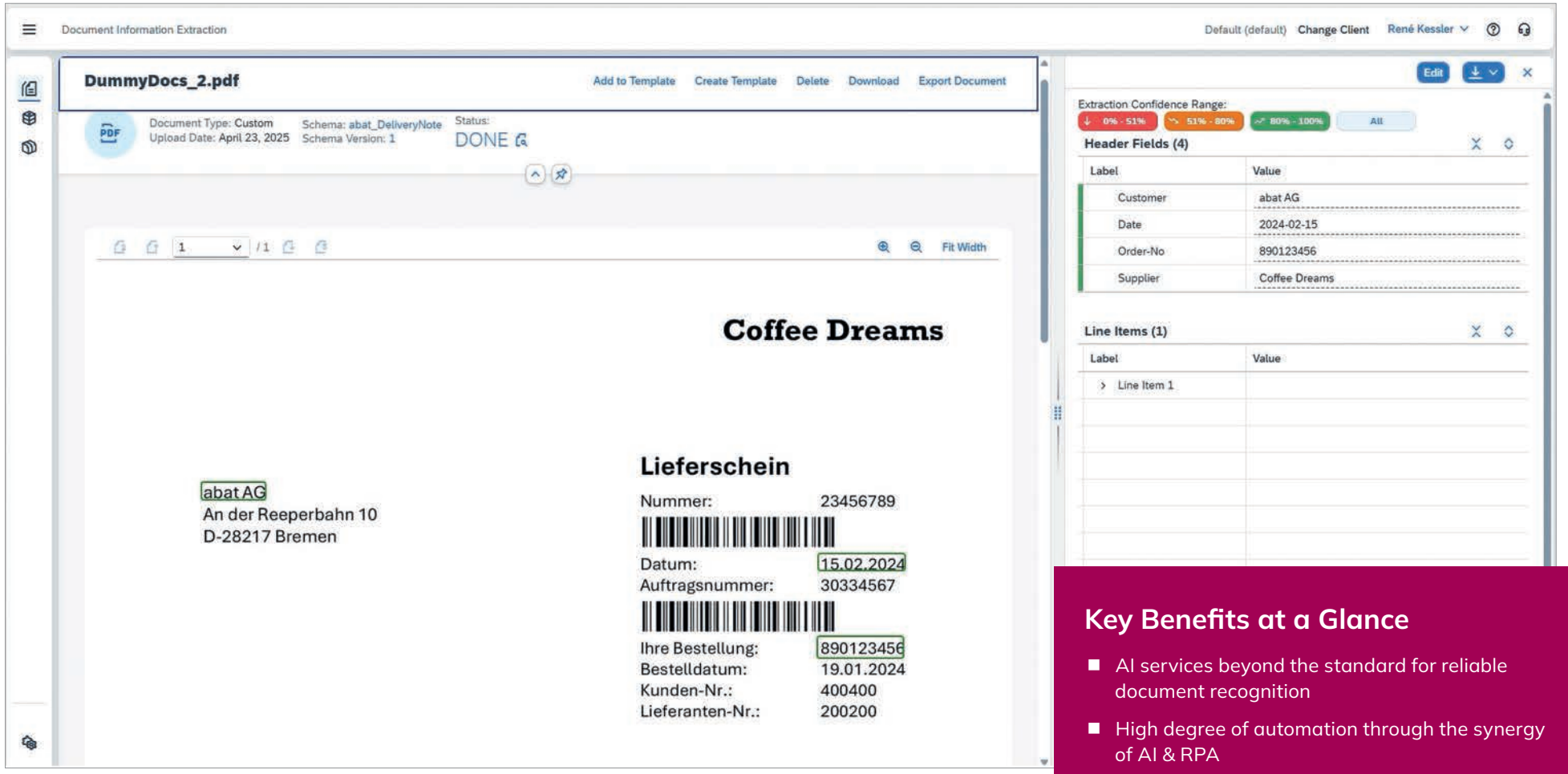
Less manual verification, higher process quality: Document processing with AI

In logistics-related business processes, large volumes of documents such as order confirmations, debit notes, or invoices are generated daily. Manually reading these documents, matching them with SAP data, and processing them further is time-consuming and error-prone – especially with high volumes and varying document formats.

abat provides intensive support to several clients in automating these mass document processes. The focus is on customized AI services that go beyond standard solutions and read documents accurately and reliably – even with varying layouts, poor scan quality, or complex content.

The AI components developed by abat extract structured data from paper and PDF documents and make it available for downstream processes. In combination with RPA bots that search for, compare, and process data within the SAP system, highly automated end-to-end processes are created. Postings and follow-up actions are triggered automatically, while humans only need to intervene in unclear cases or when tolerance limits are exceeded.

This transforms traditional document verification into a scalable, stable, and future-proof process, in which abat not only provides consulting but also develops and integrates specific AI modules that can be flexibly adapted to additional document types and processes.

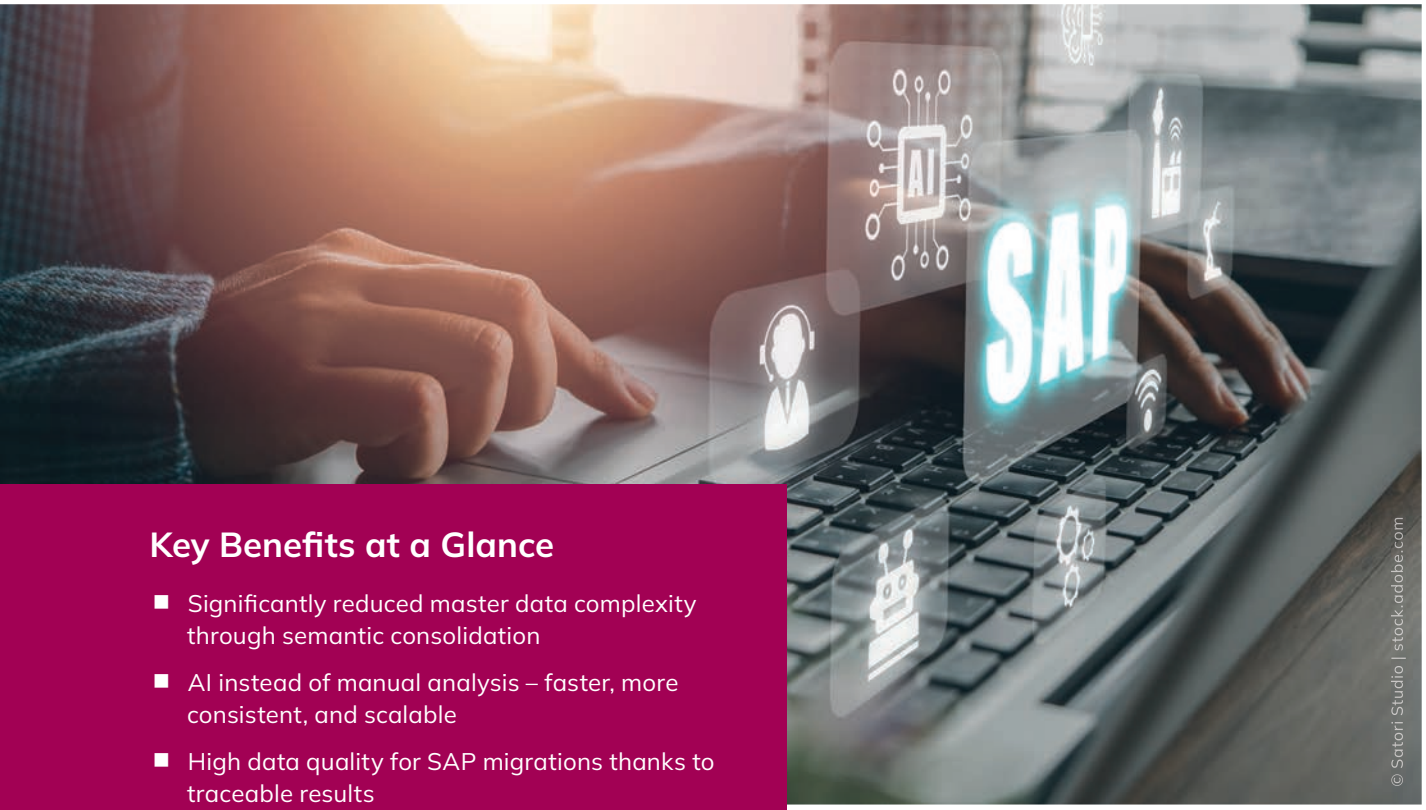


Key Benefits at a Glance

- AI services beyond the standard for reliable document recognition
- High degree of automation through the synergy of AI & RPA
- abat as an implementation partner for SAP-related Intelligently cleaning up mass processes

Intelligently cleaning master data – AI agents for SAP migrations

Every SAP migration presents a key challenge: master data must be cleaned, standardized, and streamlined. Free-text fields that have accumulated over the years – such as delivery instructions, shipping texts, or additional information – often contain identical statements in terms of content, yet in a wide variety of phrasing, spellings, and levels of detail. Traditional rules or manual cleaning quickly reach their limits here.



© Satori Studio | stock.adobe.com

Key Benefits at a Glance

- Significantly reduced master data complexity through semantic consolidation
- AI instead of manual analysis – faster, more consistent, and scalable
- High data quality for SAP migrations thanks to traceable results

In various SAP migration projects, abat uses AI-based agents to semantically analyze and consolidate precisely these free-text fields. Instead of merely comparing texts syntactically, we use large language models, embeddings, and clustering algorithms to recognize semantic meanings – regardless of word choice, spelling, or language.

For example, several hundred or thousand shipping texts can be semantically grouped and standardized into a significantly reduced, consistent set. From 1,000 historically accumulated texts, this results in approximately 100 clearly defined, standardized entries that remain technically accurate and can be meaningfully utilized in the target system.

The results are fully traceable: Each summary is based on identified content similarities and can be transparently verified. Business units retain control, while the effort required for manual analysis is drastically reduced. The result is lean master data, higher data quality, and a significantly more stable foundation for the launch of the new SAP system.

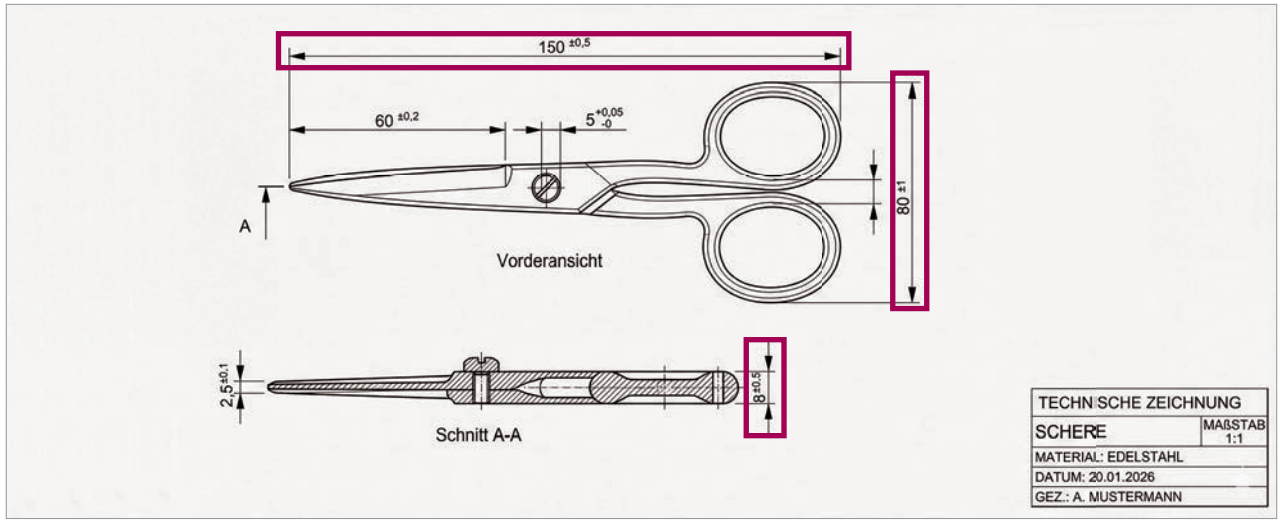
Unlocking master data – AI identifies what is missing in the system

In many companies, product-related information does exist – but not where it's needed. Technical data, dimensions, specifications, or material properties are often found in documents, PDFs, or technical drawings, but aren't stored as structured master data in the SAP system. Manual transfer is time-consuming, error-prone, and hardly scalable in day-to-day operations.

abat uses multimodal AI agents to bridge this gap. The agents analyze documents, images, and technical drawings, identify relevant content, and specifically extract information relevant to master data. In the process, text, tables, and visual elements are evaluated together to reliably capture even complex information.

The extracted values are then assigned in a product-oriented manner, validated, and prepared for further processing. This results in structured, high-quality master data that can be used directly in the SAP system – for example, for logistics, procurement, production, or other downstream processes.

This approach sustainably improves data quality, reduces manual data entry efforts, and ensures that existing knowledge is finally put to systematic use. Business departments retain control at all times, as the results are presented in a transparent and traceable manner. The solution is flexibly scalable and is suitable for both one-time data cleansing initiatives and continuous master data development.

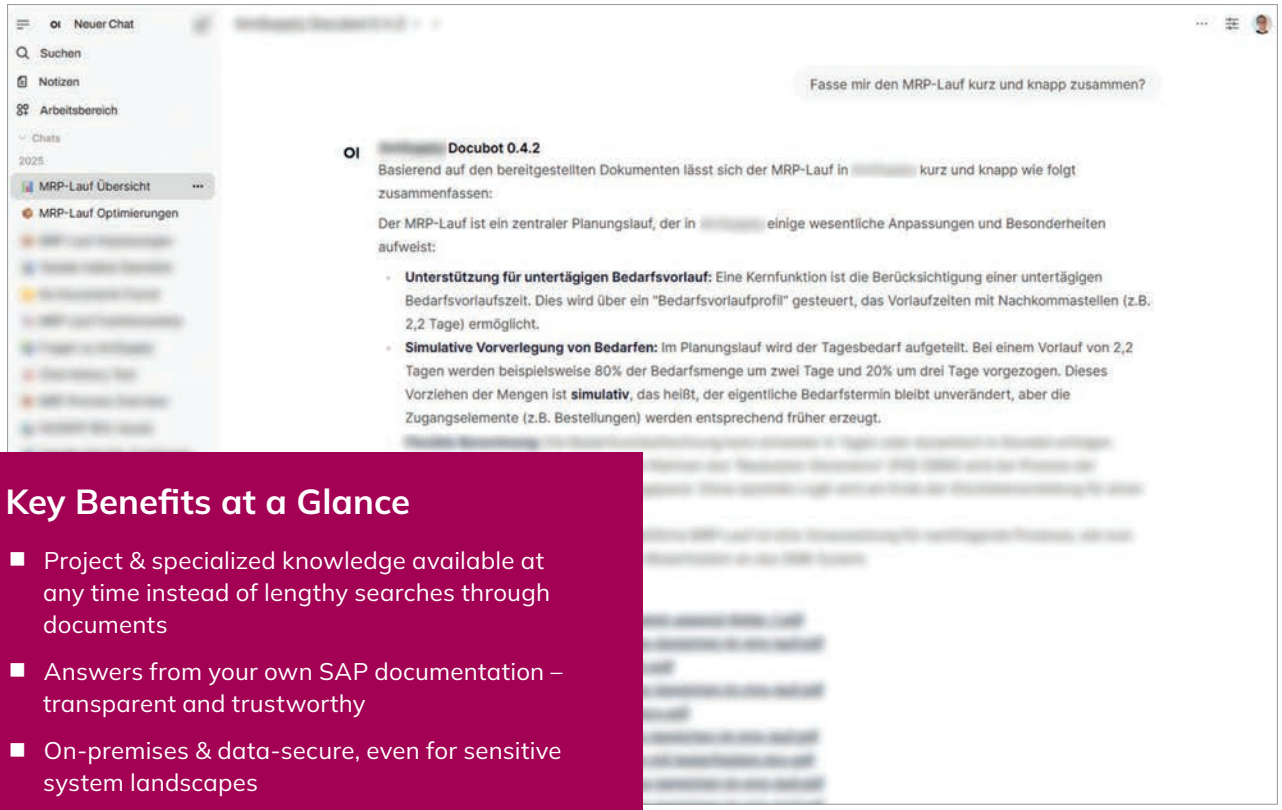


Key Benefits at a Glance

- Extract master data from documents & drawings instead of entering it manually
- Multimodal AI agents for text, image, and document analysis
- Higher SAP data quality through structured, traceable mapping

Leverage project knowledge – LLM chatbots with RAG

Over time, SAP projects generate an enormous amount of documentation: business concepts, technical specifications, extensions, deviations from the standard, and project-specific decisions. This knowledge is extremely valuable for operations – yet in day-to-day work, it is often difficult to access, scattered across numerous documents, and far removed from standard sources or public knowledge.



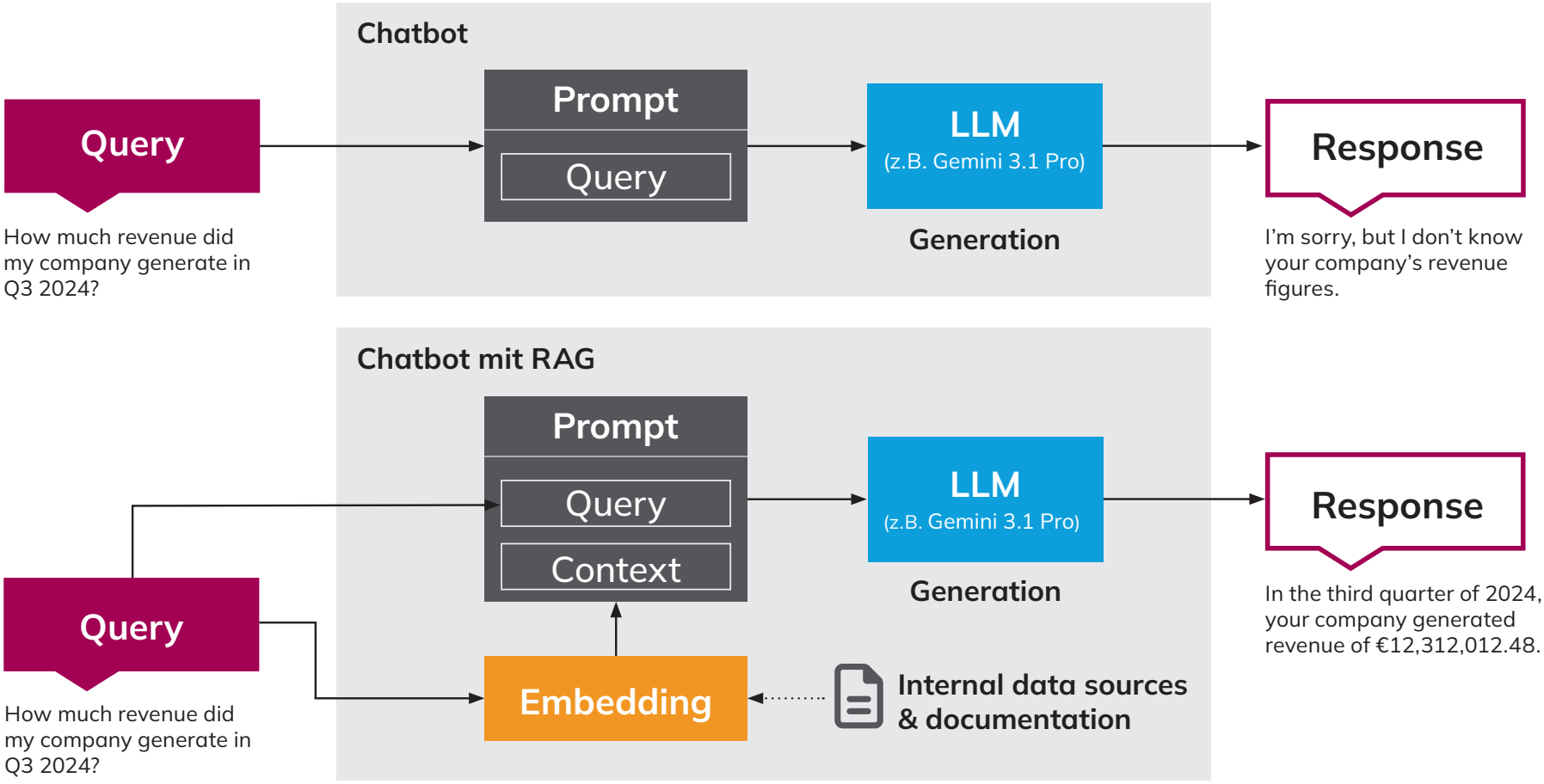
Key Benefits at a Glance

- Project & specialized knowledge available at any time instead of lengthy searches through documents
- Answers from your own SAP documentation – transparent and trustworthy
- On-premises & data-secure, even for sensitive system landscapes

abat develops LLM-based chatbots with Retrieval-Augmented Generation (RAG) that make precisely this project-specific knowledge usable. The chatbots “know” the entire relevant documentation, search it specifically, and deliver context-relevant, precise answers to questions from business departments, IT, or operations – tailored to the respective SAP system and the individual project implementation.

In doing so, the chatbots access only internal company content. Answers are always derived from existing documentation and are traceable, as the underlying sources can be transparently referenced. This builds trust in the results – even for complex or critical questions.

The solution can be operated entirely locally and on-premises, making it suitable for sensitive system landscapes and high security requirements. Whether in a project, during the go-live support, or in day-to-day operations: The chatbot becomes the central knowledge hub for SAP-specific expertise that would otherwise be difficult to access.



Data sovereignty
Your data stays with you. By using local LLMs or secure endpoints in the cloud, we prevent sensitive information from leaking to public AI systems.

Efficiency
Accelerated onboarding of new employees and reduced support workload through automated responses to standard questions.

Modularity
The system grows with your needs. New data sources or specialized agents can be easily integrated at any time.

© NicoElNino | stock.adobe.com

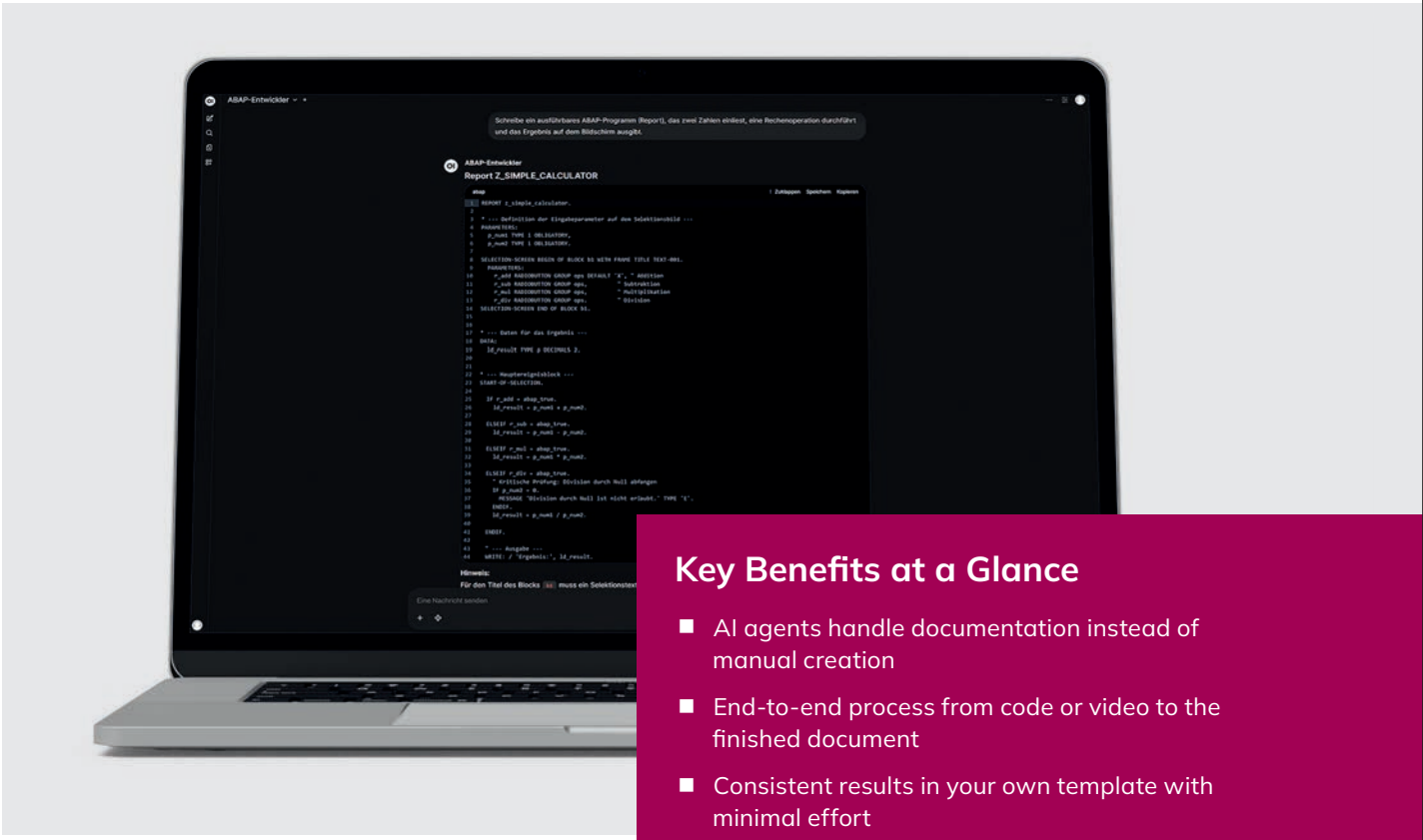
Automatically generate documentation – AI Shore & AI Agents accelerate knowledge transfer

Documentation is one of the most time-consuming tasks in IT and SAP projects. Whether it’s custom code, processes, or training materials – manual creation takes time, is often handled as an afterthought, and ties up valuable resources. At the same time, high-quality documentation is essential for operations, testing, training, and further development.

To address this, abat employs specialized AI Agents that handle the automatic creation of documentation – end-to-end and tailored to the specific use case. The agents analyze various information sources such as source code, existing documents, screen recordings, or process videos and derive structured, understandable content from them.

For example, AI agents can independently document custom code, generate comprehensible process descriptions from videos, or automatically create training materials and test scripts . The results are consistently formatted and output directly into the customer’s own documentation template.

Humans remain in the loop but are only responsible for technical approval or fine-tuning. The result is up-to-date, consistent, and reusable documentation that is produced with significantly less effort and contributes sustainably to the quality and speed of SAP projects.



Key Benefits at a Glance

- AI agents handle documentation instead of manual creation
- End-to-end process from code or video to the finished document
- Consistent results in your own template with minimal effort

CONTACT

René Kessler
Solution Expert AI & RPA

ki@abat.de

ABOUT US

abat

Since 1998, the abat Group has been combining SAP expertise, innovative software development and intelligent solutions for digital business processes. Our focus is on automotive, discrete manufacturing, life sciences, aerospace, defence & security, as well as on companies with complex logistics and manufacturing processes.

With seven service areas, we create room for efficient processes, new ideas and sustainable progress:

With **abat consult**, we advise and support you through all phases of an SAP project – from design and implementation to the operation of your SAP system.

abat manufacture provides you with high-availability digital solutions for production control in the complex manufacturing industry.

With **abat ai**, we bring artificial intelligence into concrete business processes and combine it with automation solutions such as RPA and agentic automation – from automated case handling through end-to-end automated workflows to AI agents in SAP development, consulting and projects.

With **abat transform**, we offer innovative and unique solutions, including modern cloud development and custom web and app development.

abat plm provides cross-functional process consulting with the goal of achieving a consistent data flow across PLM, ERP and MES.

Offerings from **abat protect** help customers protect information, processes and systems and maintain confidentiality, availability and integrity in business relationships.

Our **abat sustain** experts advise on how sustainability and sustainability reporting can be anchored strategically and structurally within a company.

abat | Johann-Reiners-Platz 1 | 28217 Bremen | Germany | +49 421 43 04 60 | www.abat.de