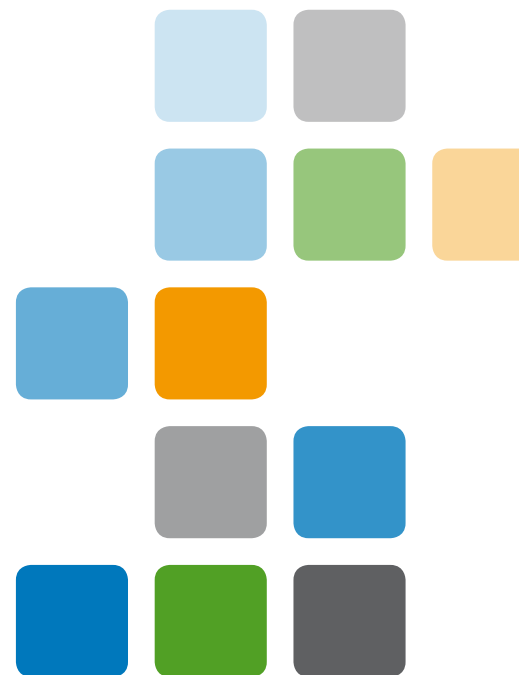




## THE DIRECT ROUTE TO NON- STOP KNOWLEDGE

SMOOTH FAILURE ANALYSIS AT  
THE DFS DEUTSCHE  
FLUGSICHERUNG GMBH WITH  
THE E:SLS

THE DFS DEUTSCHE FLUGSICHERUNG GMBH COUNTS ON THE EMPOLIS:SERVICE LIFECYCLE SUITE WHEN TECHNICAL PROBLEMS HAVE TO BE RESOLVED QUICKLY AND RELIABLY. DFS CREATED A CENTRAL KNOWLEDGE BASE FOR MAINTENANCE OF ITS TECHNICAL SYSTEMS IN ITS CONTROL CENTERS. VALUABLE, PREVIOUSLY ACQUIRED KNOWLEDGE BECOMES EASILY ACCESSIBLE AND TECHNICAL MALFUNCTIONS CAN BE SOLVED MUCH QUICKER THAN BEFORE.



## The Challenge

### Limited access to “expert knowledge”

Thanks to air traffic, we are more mobile than ever, regardless of whether we are traveling on a business trip, on vacation, for a weekend in the city or to visit family. The DFS Deutsche Flugsicherung GmbH (DFS) gets us to our desired destination safely and on time.

Every day, DFS staff coordinate more than 9,000 flights in Germany – more than three million annually. DFS operates control centers in Langen, Bremen, Karlsruhe and Munich. In addition, DFS staff work in the control towers of the 17 international airports in Germany, as well as at the Eurocontrol Centre in Maastricht, the Netherlands. DFS provides training and consultancy services around the world and develops and sells air traffic control, surveillance and navigation systems.

The air traffic control and maintenance units at the different DFS locations are responsible for handling failures or incidents regarding the technical infrastructure. They generally operate autonomously. This situation led to limited exchange of existing expert knowledge regarding successfully handled incidents.

For example:

The Air Traffic Management System (ATM) signalizes a problem on the control monitor. The employee on duty suspects a problem with the connection and sets out to find how to solve the problem. What the employee doesn't know: the identical problem occurred at another location and was successfully resolved. If the employee had direct access to documentation on the previous case, the current problem could be solved more quickly and effectively.

To improve the quality of its technical support, the DFS is, therefore, establishing a comprehensive knowledge base across all locations. This implies the adaptation of the respective maintenance processes.

The Monitoring and Control Unit (System Steuerung und Überwachung – SSÜ) manages and monitors the ATM systems located at each control center. In case of a problem, all relevant information for independent and substantiated analysis will be made available in order to significantly expedite the problem solving process. Knowledge base content will continuously be expanded via use across the locations. By means of this improved documentation, DFS intends to increase the transparency of the maintenance process.

Naturally, the central knowledge base needs to be available around the clock. Furthermore, interfaces to the SAP system, as well as to Lotus Notes, had to be implemented.

## The Solution

### Failure Analysis Support System for Intelligent Search

DFS decided to implement a Failure Analysis Support System (“SASS”) based on the Empolis:Service Lifecycle Suite. This highly developed system provides access to the entire maintenance knowledge at all times. A centralized, comprehensive knowledge base with intelligent search function and access to all relevant service and maintenance documents in all formats was established and made available to all branches. In addition, trouble-shooting is supported by a workflow management process integrated into the systems.

## The Implementation

### From prototype via training to roll-out

Initially, the DFS commissioned Empolis to develop a knowledge management concept and a prototype for a failure analysis support system. The “SASS prototype” was first tested at DFS control centers in Langen and Munich. Based on results from the prototype phase, DFS and Empolis mutually developed the SASS specifications. After the specifications underwent approval, the specified SASS requirements were implemented. For this implementation phase, DFS decided again in favor of Empolis. Following a training period, the SASS system will also be implemented in the control centers in Bremen and Karlsruhe.

“Every day, DFS staff coordinate more than 9,000 flights in Germany – more than three million annually.”



Source: DFS

## The Success

### Best Practice and Transparency

Having direct access to a comprehensive, always up-to-date SASS knowledge base from their workstation, the Monitoring and Control Unit staff can now analyze a system malfunction mostly autonomously. Reoccurring or previously solved problems can now be resolved much quicker – 24 hours a day, seven days a week.

With the help of implied search functions in existing failure and trouble-shooting documentation, the best practice method is applied. Users can enter their search query in natural language format.

The results are ranked according to relevance. Further, meaningful key words derived out of the context are suggested for a more detailed search. The users were especially enthused about the intelligent search technology. When a failure note is logged, SASS can automatically send an email to the relevant maintenance units in a predefined mailing list. When the problem is solved, the corresponding information is passed on and the note is removed from an open item list. All failure notices and times are stored in different SAP modules.

With the implementation of SASS all relevant information is now structured and a uniform workflow process exists. Transparency of the trouble-shooting process and process quality is expected to increase significantly. Faster problem resolution and faster clearance of bottlenecks in air traffic, resulting from these problems, should bring cost savings.

DFS is convinced of the Empolis solution and is considering the expansion of the system to other departments.

Empolis developed a unique solution for DFS that is particularly tailored to organizations relying on fast and substantiated failure analysis and problem solving.

With this solution, expert knowledge is made available to the entire organization at mouse click. Problem resolution becomes faster, is based on reliable information and highly economical.

In this fast-moving age, in which systems become more and more complex and project teams are located around the globe, it becomes increasingly important to find the right answers fast.

## About DFS

### More than three million flights annually

DFS Deutsche Flugsicherung GmbH, the German air navigation service provider, is a State-owned company under private law and has 5,200 employees. DFS ensures the safe and punctual handling of flights. Staff coordinate more than 9,000 aircraft movements in German airspace every day, and more than 3 million movements every year. Germany has the highest traffic volume in Europe. DFS operates control centers in Langen, Bremen, Karlsruhe and Munich.

In addition, DFS staff work in the control towers of the 17 international airports in Germany, as well as at the Eurocontrol Centre in Maastricht, the Netherlands. DFS provides training and consultancy services around the world and develops and sells air traffic control, surveillance and navigation systems.

The company's portfolio also comprises flight-relevant data, aeronautical publications and aeronautical information services. DFS has the following business units: Control Centre, Tower, Aeronautical Solutions and Aeronautical Information Management.



“DFS is convinced of the Empolis solution and is considering the expansion of the system to other departments.”



“WITH THE EMPOLIS SOLUTION, WE CAPTURE OUR ENTIRE MAINTENANCE KNOWLEDGE IN A COMMON DATABASE. WITH THIS SOLUTION, WE CAN RETRIEVE THE RELEVANT INFORMATION TO ANALYZE AND RESOLVE FAILURES EVEN FASTER.”

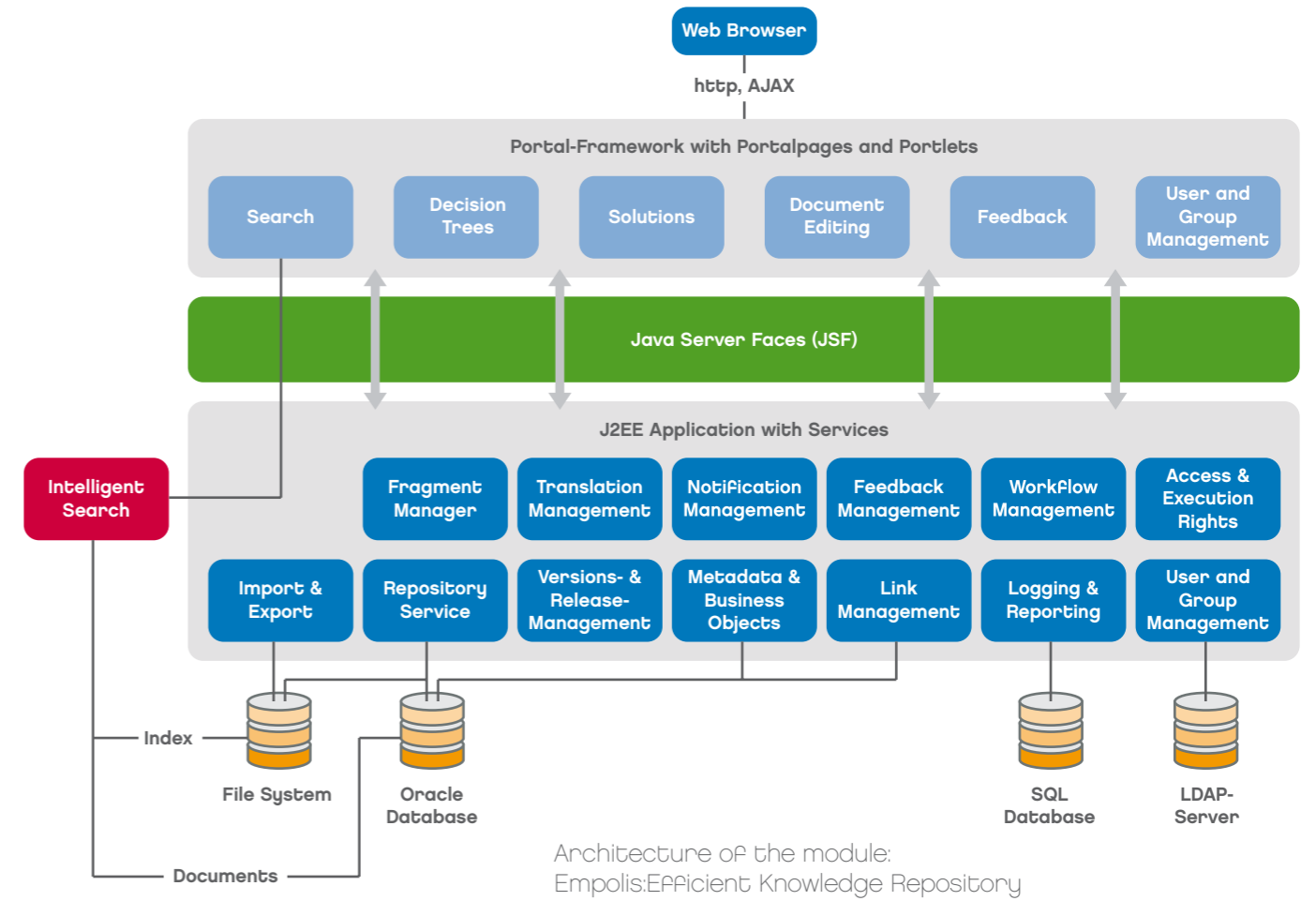
Thomas Gahler  
Project Manager SASS, DFS Deutsche Flugsicherung GmbH



## The Highlights

- Central knowledge base for all locations
- New knowledge is automatically added to knowledge base
- Improved failure analysis through the Monitoring and Control Unit (SSÜ)
- Accelerated trouble-shooting
- Best practice applied
- Sophisticated search functionality
- Interfaces to SAP and Lotus Notes
- Comprehensive user management
- Improved transparency of trouble-shooting

The graphic depicts the SASS system user interface. The left column shows the knowledge structure. The log book list and the SASS entry list with status information are found on the right hand side. The "real" entries were removed for this illustration.



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Empolis, an Attensity Group Company, provides an integrated suite of business applications that analyze, interpret and automate the exploding volume of unstructured data. Business leaders, knowledge management professionals, customer support personnel and customers receive current knowledge and get relevant and actionable answers – fast.

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