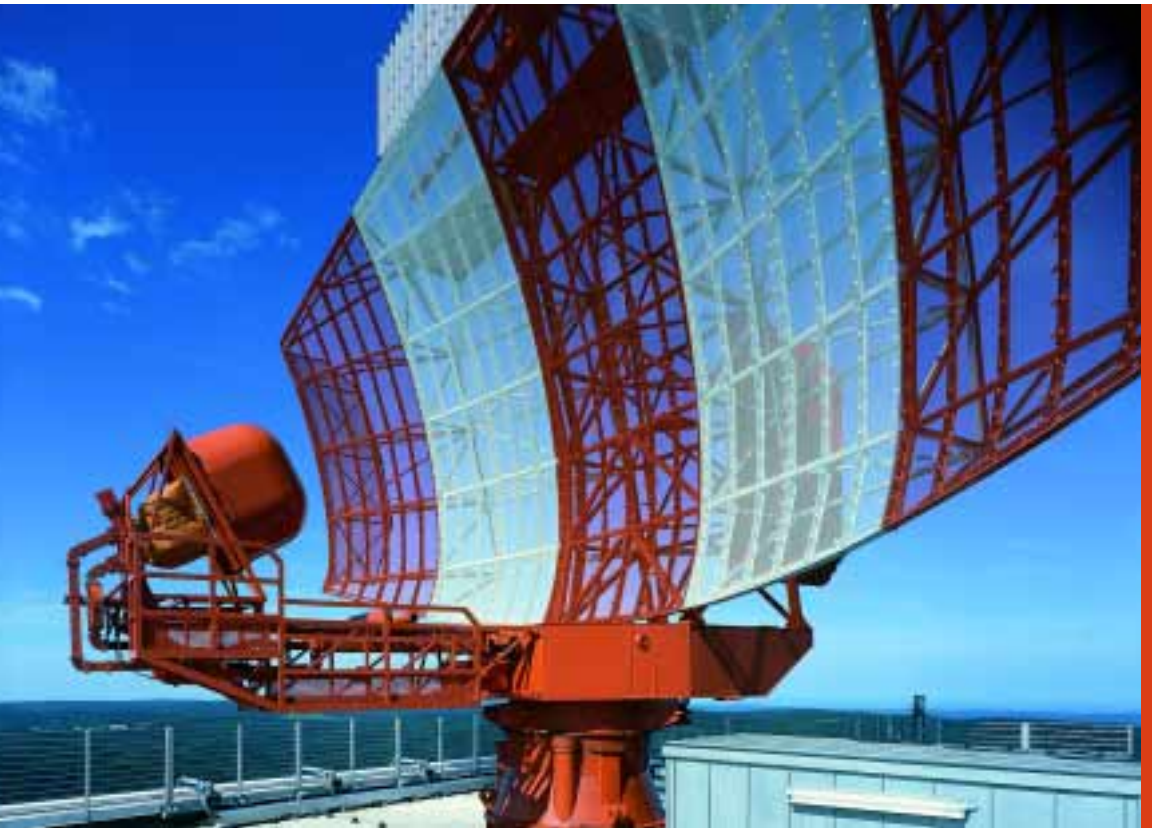
Live Audit at German air traffic control

Clear Skies, Clear Figures



DFS Deutsche Flugsicherung GmbH has upgraded its SAP systems to SAP R/3 4.7. Before doing so, it made an inventory of the previous release to ensure there would be no unpleasant surprises during the upgrade.

IT landscapes do not remain static. They evolve with time and are adapted – often under great time pressure – to suit new company requirements. During this process, business-process documentation often falls by the wayside while more important things are attended to. The result: After a while, it becomes extremely difficult to follow how processes are mapped in the company's critical applications. This does not constitute a problem until a major release upgrade or drastic organizational changes loom.

DFS found itself in precisely this situation: With its headquarters in Langen, Germany, it evolved from the former German Federal Administration of Air Navigation Services and remains under federal ownership. Having used SAP R/3 4.0B since 1999, DFS could not wait any longer to upgrade its SAP systems. When SAP announced that it would cease to support SAP R/3 4.0B after the end of 2004, DFS was left with the prospect of not being able to run its SAP systems, making a release upgrade to SAP R/3 4.7 (SAP R/3 Enterprise) the logical decision. DFS management required processes to be as similar as possible to the old system but no new custom developments. As well, the SAP standards had to be adhered to and the SAP standard take precedence over any customized solutions where possible.

Lack of transparency

Before the project started, DFS could only speculate on the final scope of the project, explains project manager Roger Hergenröder. "I knew from my own experience at DFS that we had a number of specially modified transactions and reports," he says. However, the scale of the project was not known because the development of IT systems had been integrated in the company's growth over the previous ten years.

One example of the historic growth of processes is the SAP Materials Management component, which is run by two user departments – purchasing and materials management, with the latter responsible for maintenance and repair of essential equipment. Hergenröder comments that "All of our essential technical systems for air traffic control provide multiple redundancy, and important spare parts are kept onsite. If a piece of equipment fails, its tasks are assumed by a reserve system, but the defect must be repaired as soon as possible."

These spares are not fixed assets, rather they are inventory stock and therefore must be entered into SAP R/3 separately. Shared responsibility for single-program components, as in this case, had led to difficulties keeping track of who performed what modifications on the system, as well as who was ultimately responsible for documentation.

Alongside the release upgrade, DFS had a second, equally pressing reason to examine its business processes: The Federal Government wants to sell a large portion of its shares in DFS in the foreseeable future, which will leave the company almost entirely in private hands. As a "corporatized" organization, DFS assumes a position between a private company and a government agency – a position that forces particular requirements on business processes, which need to be adapted accordingly by the IT department.

DFS is a not-for-profit organization. For the terminal services it provides, DFS sends its bills directly to the airlines, while the European Organization for the Safety of Air Navigation (EUROCONTROL) bills the airlines for enroute services provided by DFS. With the further capital privatization of DFS, however, it is likely that DFS will become a for-profit company in the future – a development that will bring

■ DFS DEUTSCHE FLUGSICHERUNG GMBH

DFS Deutsche Flugsicherung GmbH is a state-owned company under private law and has 5,370 employees. DFS is entrusted with the safe, orderly, and expeditious handling of air traffic, which includes the development and provision of air navigation services in Germany. Air traffic controllers handle several thousand aircraft movements a day, and more than 2.7 million movements every year. To this end, DFS operates one of the largest European air traffic control centers in Langen, near Frankfurt, as well as four other radar control centers in Berlin, Bremen, Karlsruhe, and Munich. In addition, DFS controllers and other specialist staff work at the 17 international airports in Germany, the regional airports Niederrhein and Altenburg-Nobitz, and at EUROCONTROL in Maastricht, the Netherlands. Apart from performing day-to-day tasks, the air navigation services also develop air traffic management systems, surveillance systems, and navigation aids. The company collects flight-related data and uses it for providing its products and services, such as aeronautical maps and charts and its preflight information service. In its academy, the company trains a large number of air traffic controllers every year. In the light of the further consolidation of Europe, DFS is committed to pursuing future-oriented European projects, such as developing a satellite system and a common European database containing flight data.

significant changes to business processes, which the IT department must start addressing today.

Analyzing the legacy system

To optimally prepare for the release upgrade and complete an inventory of existing processes, Hergenröder turned to Siemens Business Services (SBS). "SBS has long been our partner for all SAP issues," he says. "SBS consultants know our systems and the company in general." For its as-is analysis, DFS decided to use SBS Live Audit package and the included Reverse Business Engineering Plus (RBE Plus) product from Siemens and SAP partner IBIS Prof. Thome AG.

The system analysis with Live Audit is conducted in three stages: First, an Internet-based check creates an initial overview of the systems; IT managers and an external consultant fill out a questionnaire together to establish information such as how many SAP systems are in use. In the second step, RBE Plus logs all system transactions for at least two months. This establishes which standard components are in use, where and to what extent in-house development and customizing has been added, and how the processes are structured. Lastly, the results are displayed and interpreted by a consultant, who makes recommendations on how the system can be used more effectively.

In DFS's case, the transaction analysis took two steps: The first scan focused on organizational structure and finding individual reports and transactions by logging and evaluating all transactions over more than four months. The results were just as Hergenröder expected: Of more than 240 company-specific transactions, barely over 100 were used during the first analysis period – and of those, 30 were used fewer than 30 times. For custom reports, the relationship was even clearer: Of more than 660 reports, fewer than 10 percent were accessed by users – and even those were not accessed frequently. More than 99 percent of reports created were based on SAP standards. Thus, the release upgrade gave DFS a huge theoretical "clean-up" potential, particularly since many of the transactions and reports had been transferred from SAP R/2 in 1999.

However, it would be too hasty to simply delete all customer transactions and reports that were unused during the analysis, explains Hergenröder. For one thing, the logging and analysis comprised only part of the business year – and some of the reports are needed only for year-end closing. Also, only the user departments themselves can decide which

DFS air traffic controllers at work in Munich. German airspace is among the busiest in the world, and DFS air traffic controllers handle up to 8,000 aircraft movements each day.

transactions and reports they need to do their jobs and what can be removed from the system. Therefore, the project team held a workshop after the first step of the analysis process to present and discuss the results.

A second Live Audit started a month later and captured roughly six weeks of transaction data that supplied further insight into the situation and provided an additional focus on customizing, transaction data, and master data. DFS was able to establish, for example, which SAP standard processes had been run in the different modules and which processes had not been used, and visually display these results in Live Audit. Together with the employees responsible for each module and the user departments, the project team ascertained which customizing elements could be eliminated in the future. The result: Of the 240 customer transactions, 20 could be removed, and 92 custom-developed reports could be cut.

The knowledge gained through the Live Audit helped significantly reduce the complexity of the release upgrade and prioritize work packages. The project team, for example, was spared the task of transferring all of their transactions to the new system. "It's always difficult to estimate the time and effort that will be required," says Hergenröder. "When making such a large jump between versions, it can take several weeks before a given report will run under the new release and is sufficiently tested."

A more significant achievement was that the inventory created transparency, which was absolutely essential, according to project manager Hergenröder: "You can't know where you're going until you know where you've been." Alongside the expected results, Live Audit also had some surprising outcomes, for example, that some processes were not mapped in the system the way that module owners had thought. It also uncovered integration gaps and manual interfaces.

High above Hanover airport, air traffic controllers keep a watchful eye on aircraft moving on the ground and in the surrounding airspace. In fog and at night, ground radar systems ensure they never lose sight of their charges.

SAP R/3 upgraded on time

While the upgrade to SAP R/3 4.7 was completed successfully on schedule, the project team was not able to accomplish everything on its agenda before the deadline. Hergenröder found it particularly regrettable that process documentation could not be completed within the project, especially considering that SBS's tools would have been perfect for the job.

"Because support would no longer be offered for our old system, there was a set date by which the new version had to be live," he says. The task of documenting business processes was deferred because it would have required more time than was available. However, the deferral does not mean that documenting the business processes is no longer an issue: Further privatization as well as tax and auditing requirements make documentation essential in the medium term.

Although DFS was not able to use everything that Live Audit could offer, Hergenröder is satisfied with what was accomplished. "The level of transparency achieved – giving us clear facts and figures – was an important step toward implementing the release upgrade on time," he says. Although no specific study has been commissioned to establish return on investment, Hergenröder is sure that the expenditure was worth it.

However, he cannot say whether Live Audit will continue to be used at DFS: "It would certainly be good to carry out as-is analyses at regular intervals. But Live Audit is not a tool that can be bought and installed, but rather a service provided by SBS. You always need the consultants to evaluate the system scan data and prepare and interpret the results."

Jan Schulze, IT journalist, Erding, Germany ■